DOCUMENT RESUME

ED 391 073 CE 070 685

TITLE	City Planning/Infrastructure. Technology Learning Activity. Teacher Edition. Technology Education Series.
INSTITUTION	Oklahoma State Dept. of Vocational and Technical Education, Stillwater. Curriculum and Instructional Materials Center.
PUB DATE	96
NOTE	109p.
AVAILABLE FROM	Curriculum and Instructional Materials Center, Oklahoma Dept. of Vocational and Technical Education, 1500 West Seventh Avenue, Stillwater, OK 74074 (order no. TLA TE-1206).
PUB TYPE	Guides - Classroom Use - Teaching Guides (For Teacher) (052) -- Guides - Classroom Use - Instructional Materials (For Learner) (051)
EDRS PRICE	MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS	Built Environment; Classroom Techniques; *Computer Simulation; *Learning Activities; Pretests Posttests; Secondary Education; Simulated Environment; *Teaching Methods; *Technology Education; *Urban Planning

ABSTRACT

This document contains both an instructor's guide and a student guide for a city planning learning activity for technology education classes. The instructor's guide provides the following: an overview of technology education, a summary of activities and supplies needed for students to complete the learning activity, a supplies and materials worksheet for the instructor, an overview of the city planning learning activities, pretests and posttests with answer sheets, and an evaluation summary. The student's section contains the following: a summary of activities, pretest instructions, assignments, goal, glossary of terms, priority academic student skills, objectives, related competitive events for the Technology Student Association, academic and workplace applications, impact statements, career search ideas, posttest instruction, and additional problems to solve. The learning activities are based on the "SimCity2000"(TM) computer program. (KC)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED 391 073

Technology Learning Activity

Technology Education Series

CITY PLANNING

ITA TE-1206
Level 2

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☐ This document has been reproduced as received from the person or organization originating it

☐ Minor changes have been made to improve reproduction quality

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy

"PERMISSION TO REPRODUCE THIS MATERIAL IN OTHER THAN PAPER COPY HAS BEEN GRANTED BY

B Frazier

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)"

CE070685

CIMC
Teacher Edition

96-011834

Oklahoma Department of
Vocational and Technical Education
1500 West Seventh Avenue
Stillwater, OK 74074-4364

BEST COPY AVAILABLE

TE1206

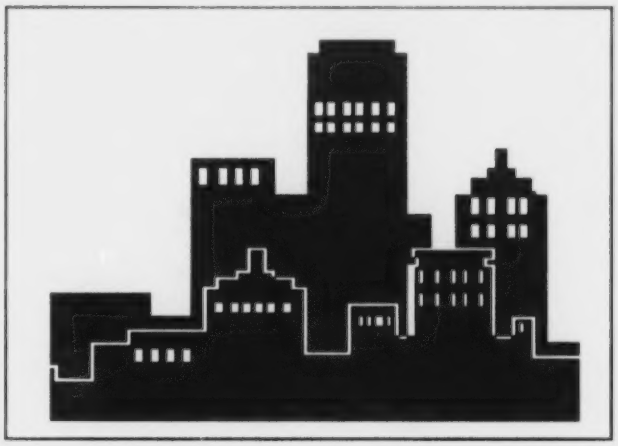
TECHNOLOGY EDUCATION

TECHNOLOGY LEARNING ACTIVITY

TE1206

City Planning/Infrastructure SimCity 2000™

Suggested Time: 18 Days



Developed by the
Curriculum and Instructional Materials Center
for the Technology Education Division
Oklahoma Department of Vocational and Technical Education

96-011834

Copyright 1996

Oklahoma Department of
Vocational and Technical Education
Curriculum and Instructional Materials Center

All rights reserved.

Printed in the United States of America by the
Oklahoma Department of Vocational and Technical Education
Stillwater, Oklahoma 74074-4364

This publication, or parts thereof, may not be reproduced in any form by photographic, electrostatic, mechanical, or other methods, for any use including information storage and retrieval, without written permission from the publisher.

Use of commercial products in these instructional materials does not imply endorsement by the Oklahoma Department of Vocational and Technical Education.

The Oklahoma Department of Vocational and Technical Education does not discriminate on the basis of race, creed, color, national origin, sex, age, veteran status, or qualified handicap.

TABLE OF CONTENTS

FOREWORD 4
PREFACE 5
ACKNOWLEDGEMENTS 6
TECHNOLOGY EDUCATION OVERVIEW
- About the Program 7
- About the TLAs 9
- About Ordering TLAs 11
- Corrections and Suggestions 11

USING THIS PUBLICATION: INSTRUCTOR'S SECTION
- Background Information 13
- Priority Academic Student Skills 13
- Suggested Activities 14
- Suggested Resources 14
- Instructional Sequence 15
- Equipment, Tools, and Supplies Summary Worksheet 15
- Pretest and Posttest 15
- Test Answers 15
- Evaluation Summary 15

USING THIS PUBLICATION: STUDENT'S SECTION
- Introduction 17
- Summary of Activities 17
- Pretest Instructions 17
- Assignments to Turn In 17
- Goal 17
- Words You Should Know 18
- Priority Academic Student Skills 18
- Objectives 18
- Related TSA Competitive Events 18
- Academic and Workplace Applications 19
- Impact Statements 24
- Career Search 25
- Posttest Instructions 25
- Skunk Works 25

HAZARD ALERT MESSAGES 26
INSTRUCTOR'S SECTION 29
STUDENT'S SECTION

FOREWORD

What will be the careers of the future? The workforce of tomorrow will be shaped by the technologies being developed today. Students today need accurate, interesting information on growing technologies in order to make informed decisions about their futures.

It is our hope that this curriculum will help improve the quality of career decisions for our students. Students are introduced to a wide range of current, "cutting-edge" technologies and are encouraged to think critically about how those technologies influence their lives and futures. Today's students do not have to become the victims of "technological illiteracy," but instead can learn to anticipate technological developments and take positive steps to prepare for the future.

Technology Learning Activities provide students with the knowledge and an introduction to the skills they need for a positive learning and career experience. Every generation is faced with learning how to manage technological advances. Information gained through participation in the Technology Education program can help students develop a holistic view of technology on which to base their educational and career decisions.

Roy Peters, Jr., Ed.D., State Director
Oklahoma Department of
Vocational and Technical Education

Lynn Hawkins, State Supervisor
Technology Education
Oklahoma Department of
Vocational and Technical Education

PREFACE

We believe that one of the most effective ways to improve education is through the development and implementation of a sound instructional materials system. Technology Education instructional materials represent a new design for CIMC which recognizes the importance of graphic materials in the learning process.

Technology Education instructional materials are designed for 6th through 10th grade students. The design of these materials is based on current research on how people read and gain information from documents. The design is called "New Look" and integrates both graphics and text into a balanced presentation which is easy to use and follow.

Technology Education provides the student a look at what the world will be like in the future based on technologies in use and being developed today. Throughout the Technology Education instructional materials, the students are introduced to "cutting-edge" technologies that they will use and encounter in a working environment later in life. This exposure gives them a wide range of experiences on which to base career decisions.

This publication is intended as a starting point, from which the teacher can innovate, localize, and personalize in order to prepare students for their future. The Technology Education series of Technology Learning Activities was written with the realization that we are creating the workforce of tomorrow by how and what we teach about technology today.

Ann Wolfe, Instructional Design Specialist
Curriculum and Instructional Materials Center
Oklahoma Department of
Vocational and Technical Education

ACKNOWLEDGEMENTS

The Curriculum and Instructional Materials Center (CIMC) extends its appreciation to those individuals who played important roles in the development of Technology Learning Activity materials.

Generous thanks is extended to Tommy Baker, a Technology Education teacher at Heavener High School for the time, talent and knowledge he contributed in the writing of this Technology Learning Activity (TLA).

Thanks is also extended to Lynn Hawkins, formerly a Technology Education teacher and currently State Supervisor, and Jim Harder, a Technology Education teacher at Mayfield Junior High School, for the time, talent and knowledge they contributed in determining the content of this Technology Learning Activity (TLA).

We also thank the State Director, Dr. Roy Peters, Jr., and the Assistant State Director, Dr. Charles O. Hopkins, for their continued support throughout this project.

Oklahoma Department of Vocational and Technical Education Technology Education staff who provided leadership and direction on this project also deserve special recognition.

Lynn Hawkins
State Supervisor
Technology Education

Donovan Bowers
Assistant State Supervisor
Technology Education

Harold Holley
Assistant State Supervisor
Technology Education

Only through the close cooperation of the Curriculum and Instructional Materials Center staff was this curriculum developed. Sincere thanks are shared with the CIMC coordinators.

John Friedemann
CIMC Coordinator

Lynna Ausburn, Ph.D.
CIMC Development Coordinator

Special recognition and thanks are also extended to other individuals within the Oklahoma Department of Vocational and Technical Education (ODVTE) involved in the development and distribution process: Danny Darrow and Diane Ensign and their staffs at the ODVTE Print Shop; Bob Davis and staff artist Kathryn Moore for the cover design; Darrell Stiles and his staff in the ODVTE Warehouse for packaging and coordinating transportation and distribution of these materials.

Finally, a big thank you to all ODVTE team members who offer their support on a daily basis in "behind-the-scenes" ways but never seem to be recognized for their contributions: Suzanne Perry and Terri Tomson, CIMC secretaries; Shirley Hill and Beverly Mealer, Technology Education secretaries.

TECHNOLOGY EDUCATION OVERVIEW

About the Program

Because the American culture is distinctly characterized as technological, it becomes the function of our schools to give every student an insight into and an understanding of the technological nature of the culture. Technology Education strives to perform this function.

Technology Education in Oklahoma is an instructional program that provides young men and women (grades 6-10) with daily, hands-on exploratory experiences and insights into technology and career opportunities so that they can make meaningful occupational and educational choices. It is a program which can enhance the educational experience of all students, whether they are the valedictorian/honor-type student, the middle range/average student, or the student who has found little success in school, namely the at-risk student.

Technology Education acquaints all students with their technological environment so they can make rational decisions about their own lives on a day-to-day basis and participate in controlling their own destiny. The program directs students to related technological and industrial fields, enabling students to realize their full potential and make maximum use of their individual talents in fulfilling career goals in their selected areas of employment.

Technology education capitalizes on the individual's potential for reasoning and problem solving, for imagining and creating, and for constructing and expressing through the use of tools and materials related to technology. It develops content and experiences to contribute to the growth and development of students commensurate with their potential. Thus, Technology Education is a basic and fundamental study for all persons in regard to career explorations and educational opportunities.

TECHNOLOGY EDUCATION OVERVIEW

Opportunities to develop and apply leadership, social, civic, and technologically related skills are provided through the Technology Student Association (TSA). TSA is the appropriate vocational student organization identified as a teaching tool for teachers to use in assisting students to achieve identified course competencies. Competency-based activities are an integral part of the instructional program.

All Technology Education courses are taught in a one-period block of time (45-55 minutes), with each of the four Technology systems (communication, construction, manufacturing, and transportation, energy and power) being designed to provide a means through which other courses such as math, science, English, and social studies can be applied in a practical manner within a technology-based situation. Teaching across the curriculum is vital to the success of a Technology Education program.

TECHNOLOGY EDUCATION OVERVIEW

About the TLA

The Technology Education series consists of 40 Technology Learning Activities (TLAs) for instruction and a supplemental activities book. Each TLA is divided into two parts: an instructor's guide and a student guide. The instructor's guide provides an overview of Technology Education, a summary of activities and supplies needed for students to complete the Technology Learning Activity, a supplies and materials worksheet for the instructor, an overview of the particular TLA, written exam answer sheets, and evaluation summary for the TLA.

Master copies of the evaluation summary sheets, pretest and posttest, and supplies and materials worksheets are provided with this instructors edition of the TLA. These sheets may be reproduced for classroom use.

All of the TLAs focus on measurable and observable learning outcomes. Instructors are encouraged to supplement, personalize, localize, and motivate with these materials in order to develop a complete teaching/learning process.

TLAs are designed for use in more than one class period of instruction. Careful study of each TLA by the instructor will help her or him determine the following:

- >>> Skills to demonstrate
- >>> Supplies and equipment needed
- >>> Amount of time needed for student practice
- >>> Workstation Bookshelf, Instructors Reference Materials, and a bibliography are provided for supplemental resources
- >>> Supplementary materials, including print and non-print media to order
- >>> Resource people to contact
- >>> Facility modifications which may be necessary to administer the TLA

TECHNOLOGY EDUCATION OVERVIEW

Each TLA is based on performance objectives. Performance objectives are specific, stating the performances necessary to meet the goal of the TLA.

The overall goal of the unit tells what the student should be able to do and what standard will be used to determine whether the student has achieved competency. The specific objectives outline the sequence of the competencies required to meet the TLA goal. The competencies may be either cognitive, requiring knowledge only, or psychomotor, requiring knowledge and skill.

TECHNOLOGY EDUCATION OVERVIEW

About Ordering TLAs

Additional TLAs in the Technology Education series may be ordered through the Oklahoma State Department of Vocational and Technical Education, Curriculum and Instructional Materials Center, 1500 West Seventh Avenue, Stillwater, OK 74074-4364. Phone 1-800-522-5810.

☑**NOTE:** Instructor's Editions have order numbers in the 1100 series (for 8-Day TLAs) and 1200 series (for 6-Week TLAs). Student Editions have numbers in the 3100 series (for 8-Day TLAs) or 3200 series (for 6-Week TLAs).

Corrections and Suggestions

CIMC wants to provide Technology Education instructors and students materials that are accurate and effective. Although the CIMC strives to maintain the highest standards of development and production, oversights occasionally do occur. If you find any errors in this or other CIMC publications or have suggestions for improving their usefulness, please notify the CIMC staff. One easy way of pointing out errors is to make a photocopy of the affected page and indicate the correction on the copy. Mail this information to the CIMC, where it will be used to correct the publication before the materials are reprinted.

To ensure that the material is updated on a timely basis, notify the CIMC of necessary corrections as soon as possible. Do not assume that someone else will notice the error and inform the CIMC; other users may be making the same assumption. Please send corrections and recommendations for improving this publication to the following address:

Curriculum Development Coordinator
Curriculum and Instructional Materials Center
Oklahoma Department of Vocational and Technical Education
1500 West Seventh Avenue
Stillwater, Oklahoma 74074-4364

USING THIS PUBLICATION

Background Information

Priority Academic Student Skills

INSTRUCTOR'S SECTION

The background information component provides instructors with basic information about the subject of the TLA. Instructors are encouraged to use suggested resources for additional information on the specific technology used in each TLA.

There are 14 Priority Academic Student Skills for the Technology Education series. Not every TLA fulfills all 14 Priority Academic Student Skills, so outcomes specific to each TLA are listed in the Instructors Section and in the Students Section. The 14 Priority Academic Student Skills for the Technology Education series are:

- The student will know and appreciate the importance of technology and technological literacy.
- The student will explore career opportunities so they can make meaningful occupational choices.
- The student will explore future educational opportunities so they can make meaningful educational choices.
- The student will apply problem solving and critical thinking techniques.
- The student will apply math, science, reading, and other school subjects in a practical situation.
- The student will develop keyboarding and computer literacy skills.
- The student will develop basic skills in the safe and proper use of tools, machines, materials, processes, and technical concepts.
- The student will think logically and sequentially.
- The student will develop leadership, creative abilities, positive self-concepts, and individual potential in a technological society.
- The student will develop an understanding and the ability to adapt to those technological forces that influence life in the 21st Century.

USING THIS PUBLICATION

INSTRUCTOR'S SECTION

- The student will develop an understanding of economic development.
- The student will communicate by making clear and relevant points through the development of mental process skills.
- The student will apply design, imagination, and creative abilities.
- The student will explore the organization and management systems of business and industry.

Suggested Activities

The suggested activities component is designed to assist during the preparation stage of the teaching/learning process. The activities provide suggestions for preparation and evaluation during the instructional process. The instructor should read the suggested activities before assigning the TLAs to allow time to obtain supplemental materials, prepare audiovisual materials, and contact outside resource persons. Duties of the instructor will vary according to the particular TLA.

Suggested Resources

Suggested resources, include people, as well as print and non-print media that may be used with the TLA. References used during the development of each TLA are also provided. The instructor can use suggested resources and TLA references to supplement her or his knowledge of the subject to help students with particular interests or objectives in the area covered. Please note that suggested resources and references listed in this publication existed when this publication was written. CIMC assumes no responsibility for providing these materials and cannot ensure the availability of these materials as individual vendors, manufacturers, and publishers may discontinue these products at any time.

USING THIS PUBLICATION

INSTRUCTOR'S SECTION

Instructional Sequence

This component provides instructors with daily lesson plans for the TLA. Included in the instructional sequence component are suggested daily assignments and equipment, tools, and supplies that will be needed for each student. A column for facility requirements or modifications is provided for each instructor. This component is provided as a guide to plan for and monitor students' progress through the TLA.

Equipment, Tools, and Supplies: Summary Worksheet

This component is provided as a planning tool for instructors. It provides instructors with a list of the necessary equipment, tools and supplies to support student activities and provides specific information for budgeting purposes.

Pretest and Posttest

These components provide criterion-referenced evaluation of the objectives listed in each TLA. If objectives or activities have been added, deleted, or modified, appropriate changes should be made on the tests.

Test Answers

This component is provided to assist instructors in evaluating student performance on written tests.

Evaluation Summary

This component is provided to assist instructors in summarizing the performance of each student on an individual basis. The evaluation summary forms are also provided as photocopy masters for the instructors use.

USING THIS PUBLICATION

STUDENT'S SECTION

Introduction

Daily activities are the step-by-step procedures students will follow to complete the learning experience. Each TLA is organized by daily tasks and activities. Students are able to pace their progress through the TLA by referring to the activities for the day.

Within the daily activity pages are components common to all TLAs.

Summary of Activities

A Summary of Activities page begins each day of the TLA. This page provides several important pieces of information for both the student and instructor.

1. In the left column this page provides the student with a list of activities to be accomplished that day.
2. In the right column the major Academic and Workplace Application which applies to that day's activities is graphically indicated with a standard icon.
3. Below the icon is a list of specific skills reinforced during that day's activities.

Pretest Instructions

The students are required to take a Pretest as one of the first day's activities. The instructions for the Pretest are given in this section.

Assignments to Turn In

Day One includes a list of all assignments the students are expected to turn in during or at completion of the TLA. This list includes all tests, activities, and products covered in the TLA.

Goal

On Day One, following the assignments checklist, is a concise statement of the overall goal of the TLA. This statement summarizes the purpose for completing the TLA and encourages the student to think about the broader implications of the learning experience.

USING THIS PUBLICATION

STUDENT'S SECTION

Words You Should Know

The first day's activities includes a glossary of unfamiliar technical terms used in the TLA. Often these terms are necessary for the student in order to accurately follow instructions in the activity procedures. The students should be encouraged to review this glossary and refer to it often during the course of the TLA.

Priority Academic Student Skills Reinforced by this TLA

As stated in the guide to the Instructor's Section, there are 14 identified Priority Academic Student Skills associated with the Technology Education series. This section of Day One activities lists the Priority Academic Student Skills that specifically apply to the TLA. A student who reviews this list will gain a better understanding of the scope of experiences and skills to be gained from the TLA.

Objectives

Each TLA is made up of a set of measurable objectives. In this section on Day One, students are given a list of all the objectives addressed in the TLA. This list can serve to introduce students to the flow of the TLA as they build introductory skills in a technology.

Related TSA Competitive Event(s)

Each TLA may be used by students to begin work toward completion of a Technology Student Association competitive event. Some TLAs are tied to a specific TSA event; other TLAs may be used with several events. This Day One section gives the student and instructor a list of appropriate TSA events which the TLA may support.

TSA competitive events promote leadership development, and an understanding that winning isn't everything but involvement is. Events are staged at Local, Regional, State, and National levels.

USING THIS PUBLICATION

STUDENT'S SECTION

Academic and Workplace Applications

The curricular content and activities found in this Technology Learning Activity help students apply academic and workplace competencies. These competencies include: Reading Skills, Writing Skills, Mathematics Skills, Science Skills, Oral Communications Skills, Interpersonal or Relating Skills, Creative Thinking and Problem Solving Skills, Employability Skills, and Social Studies Skills.

Preparing students to enter successfully into today' world . . .

Preparing students to enter successfully into today's world of work offers vocational education a substantial challenge. The contemporary workplace is characterized by constant and rapid technological change and by increasing job complexity and skill intensity. Due to rapid technological advancement, the half-life of work skills is now reduced to a bare three to five years. Out of this new workplace environment has arisen a growing national awareness of the critical importance of an American workforce armed with the skills necessary to survive in a competitive economy.

. . . emergence of a renewed emphasis on basic academic skills . . .

One result of this national awareness has been the emergence of a renewed emphasis on basic academic skills in all areas of education. Pressure to increase academic skill development is being placed on education by both legislative action and industry mandate. The Carl D. Perkins Vocational and Applied Technology Education Act of 1990 sets stringent academic and workplace skill requirements for vocational education. State legislatures are increasingly requiring basic skills accountability by teachers and school administrators.

. . . expected learner outcomes are being implemented with increasing frequency.

Graduation exams, minimum competency requirements, and expected learner outcomes are being implemented with increasing frequency. In addition, business and industry are delivering the message clearly to educators that vocational competence now requires increased strength in academic and workplace skills.

USING THIS PUBLICATION

STUDENT'S SECTION

The issue of basic skills . . . was successfully addressed in a national three-year study . . .

The issue of the basic skills currently required in the work place was very successfully addressed in a national three-year study conducted jointly by the American Society of Training and Development (ASTD) and the U.S. Department of Labor (DOL). The findings of this study were published in 1990 in the book, Workplace Basics: The Essential Skills Employers Want.

. . . research indicates clearly that American employers . . . need a variety of skills . . .

The ASTD/DOL research indicates clearly that American employers have discovered that their workforces need a variety of skills that include, but are not limited to, the classic academic trio of reading, writing, and computation. Employers now are also looking for competence in areas such as "learning to learn," problem solving and critical thinking, interpersonal and teamwork skills, oral communication and listening techniques, and the social and personal management skills that demonstrate a capacity for independence and responsibility in on-the-job performance.

. . . business and industry have expanded and redefined "workplace basics."

It is clear that the requirements of today's business and industry have expanded and re-defined "workplace basics." It is in line with this re-definition, and with the competency requirements of current education legislation, that the Oklahoma Department of Vocational and Technical Education has chosen to address "basic skills" in the instructional materials produced by its Curriculum and Instructional Materials Center.

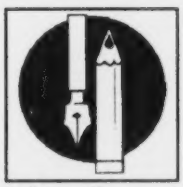
CIMC materials contain information and activities which develop academic and workplace application competencies . . .

It is not a new development for CIMC materials to contain information and activities which develop academic and workplace application competencies in students undertaking vocational programs. What is new is the specific marking, or flagging, of items in our instructional materials that address academic and workplace application skills.

USING THIS PUBLICATION

To assist teachers and students in identifying activities which promote academic and workplace skills . . .

READING SKILLS: Skills involving use of print resource material for obtaining and applying information.



WRITING SKILLS: Skills involving written communication of processes, information, or ideas.

MATHEMATICS SKILLS: Skills involving computation, calculation, and interpretation of numerical data.

STUDENT'S SECTION

To assist teachers and students in identifying activities which promote academic and workplace skills development, CIMC has implemented a marking system which uses simple graphic symbols, or icons. These icons are located in the right margins of Activity Sheets. The following is an explanation of the icons and the kinds of academic and workplace application activities they indicate.

Current vocational education literature indicates that functional literacy as a workplace basic needs to be defined in terms of reading competencies actually required for job performance. The activities identified with this icon as addressing reading skills in CIMC materials deal specifically with developing reading skills in an applied, job-related context. These range from general information-gathering activities to tasks requiring use of specific technical reference materials. Many contain a "learning to learn" aspect, which promotes engaging actively and purposefully in vocationally relevant enquiry.

Tasks identified with this icon promote development of skills in written communications. As with reading skills, the writing skills emphasized in CIMC materials have a vocational context. They include filling out forms, keeping work activity records, writing simple memos and letters, generating more complex reports and articles, and written expression of ideas and concepts related to vocational performance or exploration.

This icon identifies activities which develop vocationally-related skills in computation, measurement and estimation, selection and application of appropriate mathematical processes, and collecting, displaying, or interpreting data.

USING THIS PUBLICATION

SCIENCE SKILLS: Skills involving mastery and application of scientific information or theory.

ORAL COMMUNICATION SKILLS: Skills involving speaking and listening.

INTERPERSONAL OR RELATING SKILLS: Skills involving working and getting along with others.

CREATIVE THINKING AND PROBLEM SOLVING SKILLS: Skills involving comprehending, applying, analyzing, and developing complex ideas and situations.

STUDENT'S SECTION

This icon marks activities which are related to the development of skills in either the physical or biological sciences. These skills stress occupationally-related applications of science and technology.

Activities marked with this icon promote development of effective speaking and listening. They include practice in such areas as speaking techniques, word choice, non-verbal messages, use of communication media, and using active listening techniques. Many of these activities promote "learning to learn" skills in verbal enquiry.

Activities which deal directly with skills in relating to others are marked with this icon. This includes areas such as multi-cultural awareness, group processes and dynamics, negotiation, dealing with conflict, cooperation and teamwork, values and attitudes, and leadership and motivation.

This icon identifies activities which stress development of higher-order thought processes such as problem identification and analysis, lateral thinking, evaluating alternatives, developing solutions, examining assumptions, and evaluating outcomes.

USING THIS PUBLICATION

EMPLOYABILITY SKILLS: Skills involving choosing, obtaining, and succeeding in a career.

STUDENT'S SECTION

Activities marked with this icon relate to competencies required to obtain employment and develop a career. These competencies include specific occupational tasks. They also include items such as career analysis and selection, job searching, completing applications and resumes, interviewing, and business etiquette and personal management skills required for job-keeping and maturing in one's work. Examples of the latter category include personal presentation, self-discipline, work accuracy, reliability, discretion, punctuality, stress handling, judgement, confidence, etc.

SOCIAL STUDIES SKILLS: Skills involving investigation and application of social concepts.

This icon marks activities which stress competencies in fields relating to human society and its distribution and relationships. This includes areas such as history, geography, government and politics, economics, psychology, sociology, demographics, current events, cross-cultural studies, consumer issues, environmental issues, and ethical concerns in science and technology.

USING THIS PUBLICATION

Impact Statements

STUDENT'S SECTION

There are five areas of human culture for which each TLA has an impact. These impact statements appear during Day Eight, after the student has gained some familiarity with the technology. .

1. ENVIRONMENTAL IMPACT: A statement introducing the student to the impact of the technology on the environment.
2. SOCIAL/CULTURAL IMPACT: A statement concerning the impact of the technology on society and culture.
3. ECONOMIC IMPACT: A statement concerning the impact of the technology on the economy.
4. POLITICAL IMPACT: A statement concerning the impact of the technology on politics, laws, and regulations, and the impact of politics on the development of the technology.
5. ERGONOMIC IMPACT: A statement concerning the ergonomic implications of the technology. Ergonomics is the study of developing products and systems that meet peoples' needs.

Impact Statements offer the student the opportunity to see beyond the activities in the Technology Learning Lab and glimpse the real-world applications of the technology.

USING THIS PUBLICATION

STUDENT'S SECTION

Career Search

Also on Day Eight, the students are given the assignment of investigating several career opportunities related to the technology of the TLA. The investigation is done with Career Search Abstracts. A list of up to five careers related to the TLA is given, followed by pages from Career Search Abstracts that detail the career qualifications and work environment. The student is required to choose two of the five related careers, read the appropriate abstracts, then write a short essay about why those careers may be appealing.

Posttest Instructions

The students are required to take a Posttest as one of the last day's activities. The instructions for the Posttest are given in this section. The score for the Posttest may be compared to the score for the Pretest to help determine the student's gain during the TLA.

Skunk Works

Skunk Works, a Day Eight optional activity, includes instructions that could be used for solving problems or reinforcing the enrichment of learning. The term Skunk Works was coined by engineers at 3M Corporation in the mid-1960s. Some engineers wanted to develop a new product, but company management would not give them the time or money to work on the project. So the engineers "borrowed" time and money from approved projects to work on their "Skunk Works." When they finished developing the product, they presented it to management and it has been a 3M product ever since. The product: Velcro fasteners.

HAZARD ALERT MESSAGES

The Daily Activities include hazard alert information specific to the Activity. These messages should be discussed carefully and thoroughly. The Hazard Alert Message system used in the TLA is based on the American National Standards Institute (ANSI) Standard Z535, which provides for five levels of alert.

Students are introduced to the ANSI Hazard Alert Message system as an activity in the Laboratory Safety for Construction Technology TLA (TE1107/TE3107). This system was adopted by ANSI as the standard in 1990 and will be the hazard alert system in use when students reach the workplace.

Hazard Alert Messages in the TLA are indicated both by the color red and graphically. There are three types of hazard alert graphics used in the TLA: the hazard alert symbol, injury hazard graphics, and avoidance graphics.

This Hazard Alert Symbol is used with the words **DANGER, WARNING,** and **CAUTION.** ANSI defines these words as:

DANGER indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION indicates a hazardous situation which, if not avoided, may result in minor or moderate injury.

HAZARD ALERT MESSAGES

There are two types of graphics used in conjunction with the hazard alert symbol. This type of graphic depicts a specific injury that may be expected if the hazard described in the alert is not avoided.

This second type of graphic is called an avoidance graphic. It depicts an action the student should take in order to avoid injury.

There are two other ANSI words used in the TLAs and the students should understand their meanings:

NOTICE indicates an action that could result in damage to property or equipment.

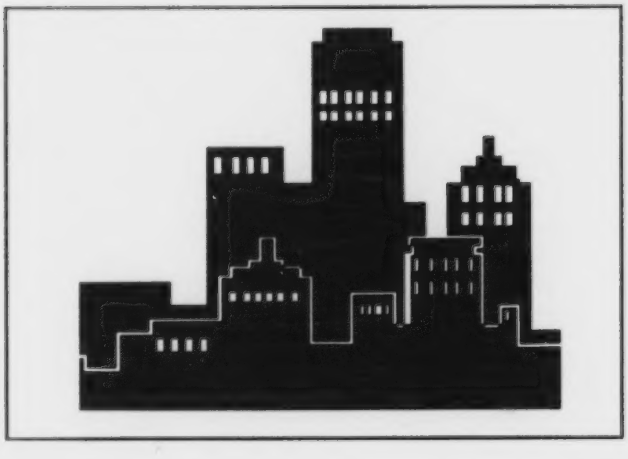
IMPORTANT indicates an instruction that can help the student do a better job.

TECHNOLOGY EDUCATION

City Planning/Infrastructure
SimCity 2000™

TE 1206/3206

INSTRUCTOR'S SECTION



BACKGROUND INFORMATION

As your students work through SimCity 2000, they will be learning about cities and how they work. They will see, first hand, why city planning is important. As they create their own cities, they will see the effects of good and poor planning.

SimCity 2000 cities get most of their money from property taxes while most Oklahoma cities get their money from the sales tax. You may want to discuss the two taxes. SimCity 2000 cities can add a 1% sales tax using the Ordinance Window. Property tax in SimCity is calculated using the following formula: Property Tax = Total City Population x Tax Rate x 1.29

Here are some helpful hints you can pass on to the students::

The **Status window** is located next to the **Toolbar** in the upper portion of the screen.The **Status window** displays the current tool you have selected and the cost of using that tool. An icon in the **Status window** tells you what the weather conditions are; a message line warns you of the city's most pressing needs as well as any impending disasters. Remind your students to watch this message line to find out what the citizens are demanding.

Power Lines - Flashing power symbols indicate either a break in a power line or an overloaded power plant. The exact cause of the flashing can be identified with the **Query Tool** by clicking on the power plant. If this query shows that the power plant is overloaded, another plant must be added to increase the generating capacity. If a line is broken, it must be fixed.

Remind the students to construct power lines into the zone itself. The closer the Sims are to the power lines, the faster they will move in. Power lines must be built between zones for power to be transmitted.

INSTRUCTOR'S SECTION

BACKGROUND INFORMATION

Water Lines - Remind the students that as soon as the city starts to grow, they must build a water system if the growth is to continue. Explain that they must build the large water mains so that the Sims can connect the small pipes from the individual buildings to the water mains themselves. To get the water to flow, water pumping stations must be built. Putting the water pipes underneath the roads is often a good plan. Later, as the city continues to grow, water towers must be built to maintain adequate water pressure.

Zoning - Successful cities usually have commercial, industrial, and residential zones. The most successful ratio of zones is **R=I+C,** with **R** representing the number of tiles zoned residential, **I** represents the number of tiles zoned for industry, and **C** representing the number of tiles zoned commercial.

Transportation - Roads and/or other types of transportation must be built to connect zones. Sims need to be within three tiles of any type of transportation in order for the city to grow.

Demand Indicator - This indicator provides a rough estimate of your zone balance. A negative demand for commerce and industry may be caused by the lack of an airport or seaport and have nothing to do with the balance of industrial and commercial zones.

See student pages 23–28 for additional background information about cities, city planning, and SimCity 2000.

INSTRUCTOR'S SECTION

PRIORITY ACADEMIC STUDENT SKILLS

- The student will know and appreciate the importance of technology and technological literacy.
- The student will explore career opportunities so they can make meaningful occupational choices.
- The student will explore future educational opportunities so they can make meaningful educational choices.
- The student will apply problem solving and critical thinking techniques.
- The student will apply math, science, reading, and other school subjects in a practical situation.
- The student will develop keyboarding and computer literacy skills.
- The student will develop basic skills in the safe and proper use of tools, machines, materials, processes, and technical concepts.
- The student will think logically and sequentially.
- The student will develop leadership, creative abilities, positive self-concepts, and individual potential in a technological society.
- The student will develop an understanding and the ability to adapt to those technological forces that influence life in the 21st Century.

INSTRUCTOR'S SECTION

PRIORITY ACADEMIC STUDENT SKILLS

- The student will develop an understanding of economic development.
- The student will communicate by making clear and relevant points through the development of mental process skills.
- The student will apply design, imagination, and creative abilities.
- You will explore the organization and management systems of business and industry.

INSTRUCTOR'S SECTION

SUGGESTED ACTIVITIES

- ✓ Obtain materials to supplement TLA. See Suggested Resources for computer materials to supplement this module.
- ✓ Review instructional outline for this TLA. Modify time frames to suit class needs and plan activities for each class period.
- ✓ Study the specific objectives to determine those you will cover. Also decide which objectives should be taught to which students.
- ✓ Determine the scope and sequence of any objectives you add to the TLA. Design and develop support materials, including evaluation techniques, for these objectives.
- ✓ Determine how you will schedule time for students to demonstrate competence in the required procedures.
- ✓ Make arrangements for guest speakers. Supply speakers with specific objectives and other appropriate sections of this TLA.
- ✓ Install the SimCity 2000 software. Prepare start-up instructions for the students to follow.
- ✓ Practice using SimCity 2000 so you will be familiar with how it works and what it does.
- ✓ **Using the Simulations**

  This TLA was written to be used with the SimCity 2000 simulations found in the Teacher's Guide. Look at the simulations to decide the best way to use them in your class. It is recommended that an original, or a very clear copy of the student pages be kept with the TLA. The master "Elements of the City" should be available to the students as they work. Students can answer the questions found in the simulations on notebook paper or on copies of the simulation pages.

INSTRUCTOR'S SECTION

PREPARATION

SUGGESTED ACTIVITIES

- ✓ If you don't have the teacher's guide, call Maxis at 1-800-99MAXIS for ordering information.
- ✓ Provide pictures and articles of real cities including examples of well planned and poorly planned cities.
- ✓ Allow time for students who to give an oral presentation over what they learned about cities and city planning. If possible they can show the city they created.

INSTRUCTOR'S SECTION

SUGGESTED RESOURCES

Bremer, Michael. *SimCity 2000™ User Manual.* Maxis. Orinda, California 94563-3346, 1993.

Bremer, Michael. *SimCity 2000™ Teacher's Guide*. Maxis. Orinda, California 94563-3346, 1994.

SimCity 2000™ User Manual, page 139 and the *SimCity 2000™ Teacher's Guide,* page 86–88 list additional resources and references.

Bremer, Michael. *SimCity 2000™ User Manual.* Maxis. Orinda, California 94563-3346, 1993.

Bremer, Michael. *SimCity 2000™ Teacher's Guide*. Maxis. Orinda, California 94563-3346, 1994.

SimCity 2000™ User Manual, page 139 and the *SimCity 2000™ Teacher's Guide,* page 86–88 list additional resources and references.

SimPosium, a newsletter published twice a year, provides classroom hints and ideas. To get a copy of the latest issue, call 1-800-99MAXIS or fax 512-253-3736

Online Sources

http://www.maxis.com

CompuServ at 71333,1470

email: spider@maxis.com

ClubOpolis:
http://www.emf.net/~six/co/index.html

INSTRUCTOR'S SECTION

WORKSTATION BOOKSHELF

INSTRUCTOR'S REFERENCE MATERIAL

Instructional Sequence	Technology Education: City Planning—SimCity 2000™		
	Assignments	**Equipment, Tools, and Supplies**	**Facilities Requirements/ Modifications**
Day 1	Take Pretest. Read and study the Assignment Checklist, Words You Should Know, Priority Academic Student Skills, TSA Competitive Events, and Academic and Workplace Skills.	Computer Score Sheet/card or notebook paper for Pretest	
Day 2	Complete Objective 1:Complete pages 6–24 of the tutorial in the SimCity 2000™ Users Manual.	Computer with SimCity 2000 installed SimCity User's Guide	
Days 3–15	Complete Objective 2: Using objectives 3–14 complete the simulations listed below. **Unit 1 Quick City 2000** Starter City Quick and Dirty City Redesigning Quick and Dirty **Unit 2 The Living City** Elements of the City Land and Location City Services and Infrastructure **Unit 3 Cities and Change** Immigration and Emigration Landforms and Limitations/Natural Resources Time and Technology **Unit 4 Politics** Politics and Planning Public Opinion and Feedback Ordinances and the City Council **Unit 5 Economics** Industry and Commerce City Finance Land Value Complete Objective 3: Interpret information from the SimCity 2000 maps and graphs.	Computer with SimCity 2000 installed SimCity 2000 User's Guide SimCity 2000 Teacher's Guide	

Instructional Sequence	Technology Education: City Planning—SimCity 2000™		
	Assignments	**Equipment, Tools, and Supplies**	**Facilities Requirements/ Modifications**
Days 3–15 (continued)	Complete Objective 4: Interpret the scale and perspective in the SimCity 2000 windows to successfully build cities. Complete Objective 5: Use decision-making skills to make environmentally-sound decisions for your cities. Complete Objective 6: Evaluate the effects of zoning, politics, and public opinion. Complete Objective 7: Plan ways to use the budget that will keep your cities economically sound. Complete Objective 8:Use math concepts for percentages, budgeting, and finance. Complete Objective 9: Explore the financial effects of economics on budgeting, taxes, and land value. Complete Objective 10: Analyze taxation and funding to provide city services. Complete Objective 11: Identify the effects of government, unemployment, health, and education on the businesses. Complete Objective 12: Develop strategies for dealing with disasters, crime, and pollution. Complete Objective 13: Improve the quality of life by adding recreational areas. Complete Objective 14: Use SimCity 2000 to formulate plans, take action, and resolve problems.		

Instructional Sequence	Technology Education: City Planning—SimCity 2000™		
	Assignments	**Equipment, Tools, and Supplies**	**Facilities Requirements/ Modifications**
Days 16 and 17	Complete Objective 15. Using any of SimCity 2000's features, create and build a simulated city of your own design. Complete Objective 16. Write a one-page essay, using correct grammar and spelling,describing the process of designing, planning, and implementing your city.	Computer with SimCity 2000 installed SimCity 2000 User's Manual and Teacher's Guide Paper	
Day 18	Complete any incomplete assignments. Read and study Impact Statements. Complete Career Search activities. Take Posttest and Spelling Test. Hand in assignments.	Computer Score Sheet/card or notebook paper for Posttest and Spelling Test. Paper for career essay	
Skunk Works	Evaluate,Improve or recreate your city Complete scenarios.	Computer with SimCity 2000 installed SimCity 2000 User's Manual and Teacher's Guide	

Equipment, Tools, and Supplies: Summary Worksheet

Equipment, Tools,and Supplies	Per Student	Per Period	Total Needed	Special Considerations	Cost Per Student	Cost Per Period	Total Needed	Special Considerations
Computer Score Sheet/card or notebook paper	1							
Computer with SimCity 2000 installed		1						
SimCity 2000 User's Manual		1						
SimCity 2000 Teacher's Guide		1						
Paper	several sheets							

PRETEST

1. Washington, D.C. is one of the few cities of our nation that was planned and designed before it was started. It was designed by:
   a. George Washington
   b. John Adams
   c. Major Pierre-Charles L'Enfant
   d. Captain John Smith

2. A detailed statement that estimates the amount of money that will be received and spent over a certain time period is a
   a. tax
   b. budget
   c. ordinance
   d. suburb

3. Sims will not move into a city until
   a. electric power is supplied
   b. the mayor's house is built
   c. ordinances are enacted
   d. schools are built

4. The oldest and most widely used form of city government is
   a. mayor-council
   b. mayor
   c. commission
   d. city manager

5. The zoning district that contains offices and shops is
   a. municipal
   b. industrial
   c. commercial
   d. residential

INSTRUCTOR'S SECTION

PART 1

PRETEST

6. The window in SimCity 2000 that is always opened when SimCity 2000 is running is the
   a. city window
   b. terrain window
   c. budget window
   d. population window

7. Which of the city toolbar's icons will give you information such as land value and the size of the police force?
   a. query
   b. power
   c. rewards
   d. commercial

8. Which of the following is not an example of a city service?
   a. telephone lines
   b. police
   c. fire
   d. libraries

9. When your city's population reaches 60,000 you will be asked if you want a
   a. new mayor's house
   b. new city hall
   c. arcologies
   d. military base

10. In SimCity 2000 what is the worse cause of pollution?
    a. industries
    b. automobiles
    c. large commercial areas
    d. power plants

INSTRUCTOR'S SECTION

PART 2

POSTTEST

11. Washington, D.C. is one of the few cities of our nation that was planned and designed before it was started. It was designed by:

    a. George Washington
    b. John Adams
    c. Major Pierre-Charles L'Enfant
    d. Captain John Smith

12. A detailed statement that estimates the amount of money that will be received and spent over a certain time period is a

    a. tax
    b. budget
    c. ordinance
    d. suburb

13. Sims will not move into a city until

    a. electric power is supplied
    b. the mayor's house is built
    c. ordinances are enacted
    d. schools are built

14. The oldest and most widely used form of city government is

    a. mayor-council
    b. mayor
    c. commission
    d. city manager

15. The zoning district that contains offices and shops is

    a. municipal
    b. industrial
    c. commercial
    d. residential

INSTRUCTOR'S SECTION

PART 1

POSTTEST

16. The window in SimCity 2000 that is always opened when SimCity 2000 is running is the
    a. city window
    b. terrain window
    c. budget window
    d. population window

17. Which of the city toolbar's icons will give you information such as land value and the size of the police force?
    a. query
    b. power
    c. rewards
    d. commercial

18. Which of the following is not an example of a city service?
    a. telephone lines
    b. police
    c. fire
    d. libraries

19. When your city's population reaches 60,000 you will be asked if you want a
    a. new mayor's house
    b. new city hall
    c. arcologies
    d. military base

20. In SimCity 2000 what is the worse cause of pollution?
    a. industries
    b. automobiles
    c. large commercial areas
    d. power plants

INSTRUCTOR'S SECTION

PART 2

POSTTEST

21. infrastruktur
22. emmigrate
23 immigrate
24. grafs window
25. budget
26. council-manager
27. ordinenses
28. mayor-counsil
29. metropolitan area
30. population window

INSTRUCTOR'S SECTION

SPELLING TEST

TEST ANSWERS

1. c
2. b
3. a
4. a
5. c
6. a
7. a
8. a
9. d
10. b
11. c
12. b
13. a
14. a
15. c
16. a
17. a
18. a
19. d
20. b
21. b
22. b
23. a
24. b
25. a
26. a
27. b
28. b
29. a
30. a

INSTRUCTOR'S SECTION

PRETEST ANSWERS

POSTTEST ANSWERS

SPELLING TEST ANSWERS

EVALUATION SUMMARY

5 POINTS EACH

Pretest _____

Career Search _____

Objective 1: Complete pages 6–24 of the tutorial in the *SimCity 2000 Users Manual*. _____

3 POINTS EACH

Objective 3: Interpret information from the SimCity 2000 maps and graphs. _____

Objective 4: Interpret the scale and perspective in the SimCity 2000 windows to successfully build cities. _____

Objective 5: Use decision-making skills to make environmentally-sound decisions for your cities. _____

Objective 6: Evaluate the effects of zoning, politics, and public opinion. _____

Objective 7: Plan ways to use the budget that will keep your cities economically sound. _____

Objective 8: Use math concepts for percentages, budgeting, and finance. _____

Objective 9: Explore the financial effects of economics on budgeting, taxes, and land value. _____

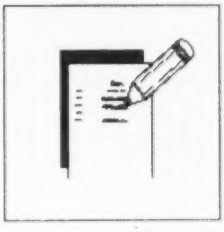
Objective 10: Analyze taxation and funding to provide city services _____

Objective 11: Identify the effects of government, unemployment, health, and education on businesses. _____

Objective 12: Develop strategies for dealing with disasters, crime, and pollution. _____50

INSTRUCTOR'S SECTION

1. PROCESS EVALUATION



EVALUATION SUMMARY

Objective 13: Improve the quality of life by adding recreational areas. _____

Objective 14: Use SimCity 2000 to formulate plans, take action, and resolve problems. _____

9 POINTS EACH

Objective 16: Write a one-page essay, using correct grammar and spelling,describing the process of designing, planning, and implementing your city. _____

20 POINTS EACH

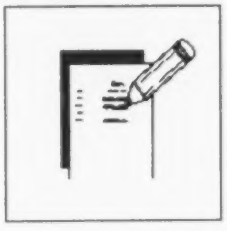
Objective 2: Using objectives 3–14 complete the simulations listed below. _____

Unit 1 Quick City 2000
Starter City
Quick and Dirty City
Redesigning Quick and Dirty
Unit 2 The Living City
Elements of the City
Land and Location
City Services and Infrastructure
Unit 3 Cities and Change
Immigration and Emigration
Landforms and Limitations/ Natural Resources
Time and Technology
Unit 4 Politics
Politics and Planning
Public Opinion and Feedback
Ordinances and the City Council
Unit 5 Economics
Industry and Commerce
City Finance
Land Value

Objective 15: Using any of SimCity 2000's features, create and build a simulated city of your own design. _____

INSTRUCTOR'S SECTION

1. PROCESS EVALUATION (con't)



1. PROCESS EVALUATION SCORE ____

EVALUATION SUMMARY

The instructor is encouraged to individualize the TLA to address the specific needs of each student, considering age and ability level. In addition to the specific areas on the chart below, the instructor should take into account the student's desire, enthusiasm, etc.

Evaluation based upon = 100 possible points, broken down as follows.

EVALUATION RATING TABLE

Student Name: _____

Criteria	Points Possible	Points Earned
Unit 1 Simulations	12	_____
Unit 2 Simulations	12	_____
Unit 3 Simulations	12	_____
Unit 4 Simulations	12	_____
Unit 5 Simulations	12	_____
City and Description	25	_____
Day 8 Career Essay	15	_____

INSTRUCTOR'S SECTION

2. PRODUCT EVALUATION

2. PRODUCT EVALUATION SCORE ____

EVALUATION SUMMARY

Posttest Score: _____

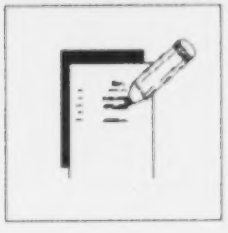
EVALUATION WORKSHEET

1. Process evaluation score = _____
2. Product evaluation score = _____
3. Written evaluation score = _____
4. Total score = _____

Divide Total Score by 3 to get TLA score.

INSTRUCTOR'S SECTION

3. **WRITTEN EVALUATION**



3. WRITTEN EVALUATION SCORE _____

Total Score for TLA **=1+2+3**

The *Total Score for TLA* divided by 3 equals the TLA score.

TLA SCORE _____

BIBLIOGRAPHY

Bremer, Michael. *SimCity 2000™ User Manual*. Maxis. Orinda, California 94563-3346, 1993.

Bremer, Michael. *SimCity 2000™ Teacher's Guide*. Maxis. Orinda, California 94563-3346, 1994.

SimCity 2000™ User Manual, page 139 and the *SimCity 2000™ Teacher's Guide*, page 86–88 list additional resources and references.

SimPosium, a newsletter published twice a year, provides classroom hints and ideas. To get a copy of the latest issue, call 1-800-99MAXIS or fax 512-253-3736

Online Sources

http://www.maxis.com

CompuServ at 71333,1470

email: spider@maxis.com

ClubOpolis:
http://www.emf.net/~six/co/index.html

INSTRUCTOR'S SECTION

STUDENT SECTION

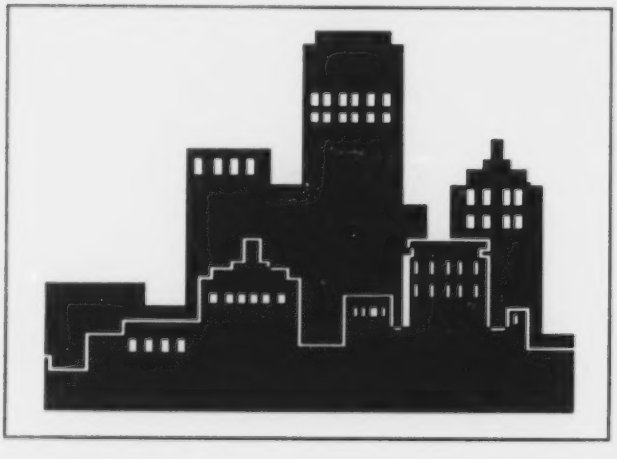
TECHNOLOGY EDUCATION

TECHNOLOGY LEARNING ACTIVITY

TE3206

City Planning/Infrastructure SimCity 2000™

Suggested Time: 18 Days



Developed by the
Curriculum and Instructional Materials Center
for the Technology Education Division
Oklahoma Department of Vocational and Technical Education

96-011834

Copyright 1996

Oklahoma Department of
Vocational and Technical Education
Curriculum and Instructional Materials Center

All rights reserved.

Printed in the United States of America by the
Oklahoma Department of Vocational and Technical Education
Stillwater, Oklahoma 74074-4364

This publication, or parts thereof, may not be reproduced in any form by photographic, electrostatic, mechanical, or other methods, for any use including information storage and retrieval, without written permission from the publisher.

Use of commercial products in these instructional materials does not imply endorsement by the Oklahoma Department of Vocational and Technical Education.

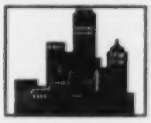
The Oklahoma Department of Vocational and Technical Education does not discriminate on the basis of race, creed, color, national origin, sex, age, veteran status, or qualified handicap.

TECHNOLOGY EDUCATION
CITY PLANNING

On Day 1 you should complete the following activities:

1. Complete Pretest
2. Read Assignments to Turn In (items to completed in 8 days)
3. Read Goal
4. Read Words You Should Know
5. Read Priority Academic Student Skills
6. Read Objectives
7. Read Related TSA Competitive Events
8. Read Academic and Workplace Applications
9. Read Information Sheet

DAY 1 ACTIVITIES



Reading Comprehension
- Gain factual information
- React to written material

Functional Reading
- Follow written instructions
- Interpret graphics and symbols
- Use content area vocabulary

TECHNOLOGY EDUCATION CITY PLANNING

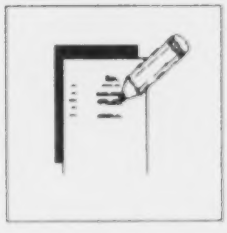
You will need a computer scan sheet or card to record your answers to the following Pretest. Be sure to write your name, the title of the TLA, the date, and the class period on the computer scan sheet or card using a #2 pencil. Use rows 1–10 to record the answers to the Pretest. If your answers will be hand-scored, use a blank sheet of paper to record your answers and number your answers 1–10.

Get Pretest Questions from your instructor.

When you finish the Pretest, return the test form and the computer scan card or notebook paper to your instructor.

DAY 1 ACTIVITIES

PRETEST INSTRUCTIONS



TECHNOLOGY EDUCATION CITY PLANNING

At the end of 18 days, you should give the following items to your instructor for evaluation:

1. Computer score card/sheet, with answers to:
   a) Pretest
   b) Posttest (including spelling test)
2. Days 3–15 Simulation "Thinking It Over" activities
   a) Unit 1 *Quick City 2000*
   b) Unit 2 *The Living City*
   c) Unit 3 *Cities and Change*
   d) Unit 4 *Politics*
   e) Unit 5 *Economics*
3. Description of student-designed city
4. Career Search Activity
   a) Two careers identified
   b) Explanation of why those occupations appealed to you

DAY 1 ACTIVITIES

ASSIGNMENTS TO TURN IN

TECHNOLOGY EDUCATION
CITY PLANNING

The City Planning/Infrastructure TLA will help you learn about cities—what makes them good places to live and what makes them bad. You will learn the importance of city design and planning, You will also learn about zoning requirements, traffic flow, public transportation and utility needs, public service demands, and environmental protection guidelines.

DAY 1 ACTIVITIES

GOAL

TECHNOLOGY EDUCATION
CITY PLANNING

DAY 1 ACTIVITIES

WORDS YOU SHOULD KNOW

bond payment — the principal and interest paid on bond issues

☑**NOTE:** In SimCity 2000 when a city needs more cash than it can make from property taxes, it can issue municipal bonds. All SimCity 2000 bonds are issued for $10,000. The interest paid in SimCity 2000 on outstanding bonds is prime rate plus 1%, plus an additional percentage based on your city's current value and loan rating.

budget — a detailed statement that estimates the amount of money that will be received and spent over a certain period of time

budget window — window that reports the city's budget and lets you make adjustments to it

city ordinances — in SimCity 2000, laws and programs that can be enacted by the mayor or city council

commercial zone — in SimCity 2000, an area designated for stores, offices, and businesses

commission form of government — form of city government where an elected commission runs the city

council-manager form of government — form of city government where an elected council hires a professional city manager to carry out its policies and administer the city

emigrate — moving away from an area

graphs window — window that displays statistical graphs about your city

immigrate — moving into an area

TECHNOLOGY EDUCATION
CITY PLANNING

industrial zone — in SimCity 2000, an area designated for factories and other industries

industry window — window that displays statistics about the city's industries

infrastructure — the essential, underlying pieces that form the basis of a city or other system/structure

☑**NOTE:** In SimCity 2000, items such as roads, water, and power are part of the infrastructure

map window — window that shows the complete city and lets you open several additional map displays

mayor-council form of government — form of city government where an elected council and an elected mayor or a mayor elected from the council are responsible for running the city

metropolitan area — a large city and its surrounding suburbs

neighbors window — window that shows your city and its neighboring cities

ordinance window — window that lets you establish and inspect city programs and laws

property tax — a tax levied on real property

☑**NOTE:** In SimCity 2000, the property tax is your main source of money for maintaining and expanding your city. Each zone in the city can be taxed; the minimum tax is 0%; the maximum is 20%

population window — window that displays statistics about the population of the city

DAY 1 ACTIVITIES

WORDS YOU SHOULD KNOW

TECHNOLOGY EDUCATION
CITY PLANNING

DAY 1 ACTIVITIES

WORDS YOU SHOULD KNOW

query tool — tool used to inspect parts of the city and provide information about what is going on in the city

residential zone — in SimCity 2000, an area designated for houses and apartments for people to live in

sales tax — a tax paid by the purchaser on items bought

☑**NOTE:** In Oklahoma, the main source of income for a city is the sales tax

transit authority — agency in SimCity 200 that is responsible for building and maintaining public transportation such as bus lines, shuttles, rails and subways

zoning — dividing a city into districts (zones) that have restricted or regulated uses

TECHNOLOGY EDUCATION
CITY PLANNING

- You will know and appreciate the importance of technology and technological literacy.
- You will explore career opportunities so they can make meaningful occupational choices.
- You will explore future educational opportunities so they can make meaningful educational choices.
- You will apply problem solving and critical thinking techniques.
- You will apply math, science, reading, and other school subjects in a practical situation.
- You will develop keyboarding and computer literacy skills.
- You will develop basic skills in the safe and proper use of tools, machines, materials, processes, and technical concepts.
- You will think logically and sequentially.
- You will develop leadership, creative abilities, positive self-concepts, and individual potential in a technological society.
- You will develop an understanding and the ability to adapt to those technological forces that influence life in the 21st Century.
- You will develop an understanding of economic development.

DAY 1 ACTIVITIES

PRIORITY ACADEMIC STUDENT SKILLS

TECHNOLOGY EDUCATION
CITY PLANNING

- You will communicate by making clear and relevant points through the development of mental process skills.
- You will apply design, imagination, and creative abilities.
- You will explore the organization and management systems of business and industry.

DAY 1 ACTIVITIES

PRIORITY ACADEMIC STUDENT SKILLS

TECHNOLOGY EDUCATION
CITY PLANNING

DAY 1 ACTIVITIES

OBJECTIVES

At the completion of this Technology Learning Activity, you should be able to:

1. Complete pages 6–24 of the tutorial in the *SimCity 2000 Users Manual*.
2. Using objectives 3–14 complete the simulations listed below.

   Unit 1 Quick City 2000
   - Starter City
   - Quick and Dirty City
   - Redesigning Quick and Dirty

   Unit 2 The Living City
   - Elements of the City
   - Land and Location
   - City Services and Infrastructure

   Unit 3 Cities and Change
   - Immigration and Emigration
   - Landforms and Limitations/Natural Resources
   - Time and Technology

   Unit 4 Politics
   - Politics and Planning
   - Public Opinion and Feedback
   - Ordinances and the City Council

   Unit 5 Economics
   - Industry and Commerce
   - City Finance
   - Land Value

3. Interpret information from the SimCity 2000 maps and graphs.
4. Interpret the scale and perspective in the SimCity 2000 windows to successfully build cities.
5. Use decision-making skills to make environmentally-sound decisions for your cities.
6. Evaluate the effects of zoning, politics, and public opinion.
7. Plan ways to use the budget that will keep your cities economically sound

TECHNOLOGY EDUCATION
CITY PLANNING

8. Use math concepts for percentages, budgeting, and finance.
9. Explore the financial effects of economics on budgeting, taxes, and land value.
10. Analyze taxation and funding to provide city services.
11. Identify the effects of government, unemployment, health, and education on the businesses.
12. Develop strategies for dealing with disasters, crime, and pollution.
13. Improve the quality of life by adding recreational areas.
14. Use SimCity 2000 to formulate plans, take action, and resolve problems.
15. Using any of SimCity 2000's features, create and build a simulated city of your own design.
16. Write a one-page essay, using correct grammar and spelling,describing the process of designing, planning, and implementing your city.

DAY 1 ACTIVITIES

TECHNOLOGY EDUCATION
CITY PLANNING

The following TLA Competitive Events apply to your study of *City Planning/Infrastructure*.

- Extemporaneous Speech
- Prepared Speech
- Research Paper

See TSA Competitive Events Guidelines for specific details on the competitions.

DAY 1 ACTIVITIES

RELATED TSA COMPETITIVE EVENTS

TECHNOLOGY EDUCATION CITY PLANNING

The symbols in the right column are used to identify the Academic and Workplace Applications that are reinforced by specific activities in this TLA.

Reading Skills Applied:

Reading Comprehension
- Gain factual information
- Analyze cause and effect
- Draw conclusions
- React to written material

Functional Reading
- Follow written instructions
- Interpret graphics and symbols
- Use content area vocabulary

Writing Skills Applied:

Language Skills:
- Use standard grammar, spelling, and capitalization
- State ideas clearly

Functional Writing:
- Use computer graphics

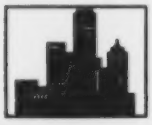
Mathematics Skills Applied:

Math Application
- Apply techniques of scaling

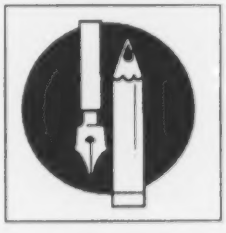
Data Analysis and Display
- Interpret charts and tables
- Interpret graphs
- Collect/record data

Functional Math
- Solve practical problems
- Calculate gross earnings
- Solve income/expense problems
- Prepare a budget
- Calculate interest
- Calculate sales tax

DAY 1 ACTIVITIES



ACADEMIC AND WORKPLACE APPLICATIONS



TECHNOLOGY EDUCATION
CITY PLANNING

Creative Thinking and Problem Solving Skills Applied:

Cognitive Activities

- Identify critical elements/issues
- Analyze/synthesize information
- Identify/analyze underlying assumptions
- Draw conclusions
- Identify/evaluate consequences
- Evaluate alternatives
- Devise a solution
- Create a finished product
- Transfer knowledge/training to new situations
- Evaluate results/outcomes

Employability Skills Applied:

Job Search/ Selection

- Analyze personal occupational aptitudes/preferences
- Investigate employment prospects of a career field/occupation
- Investigate training requirements for a career field/occupation
- Investigate benefits of a career field/occupation

Social Studies Skills Applied:

Information Analysis

- Interpret graphical information
- Interpret maps/globes
- Analyze/interpret demographic information

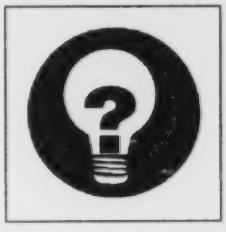
Social Studies Application

- Investigate/apply principles of government/politics

Functional Social Studies

- Analyze social issues
- Analyze conservation/ecology issues
- Analyze economic impact of science/technology
- Analyze social impact of science/technology

DAY 1 ACTIVITIES



TECHNOLOGY EDUCATION
CITY PLANNING

DAY 1
ACTIVITIES

INFORMATION SHEET

Cities developed in prehistoric times when groups of nomadic hunters and foragers switched to a settled, agricultural life. To protect themselves and their food supplies from wild animals and from raids by other people, these people built their homes within a walled area or in a naturally fortified place. Usually these cities were built close to fertile land where food for the citizens was grown. Cities were also built close to rivers or oceans because these bodies of water provide easy transportation for moving food in and out.

Soon markets developed in the cities so that craftspeople, artists and other workers could exchange what they produced for other types of goods or services that they needed. Since religion was so important to these early city-dwellers, a growing priesthood contributed to the city's religious, social, and intellectual life. Cities helped bring about the rise of commerce and industry, as well as the development of arts and education. Nearly all the world's great civilizations developed around and in cities.

New technologies have played a major role in the growth of cities. The invention of the bicycle, which provided cheap transportation, allowed cities to double in size. Steam power allowed cities built on rivers to develop. Steam power also allowed the cities in the western United States to grow through the railroads. The telephone helped cities grow even more. The widespread use of cars led to the creation of suburbs around big cities. New sources of power, water, and sewer systems allowed cities to grow even larger and more dense.

The cities of the nineteenth and twentieth centuries have been in constant growth. Today, about three-fourths of the nation's people live in urban areas. Space and undersea exploration could lead to the establishment of cities unlike anything we know today.

TECHNOLOGY EDUCATION
CITY PLANNING

Most American cities have developed haphazardly, without much planning. The results of this lack of planning can be seen in today's inner cities where large industrial plants were built anywhere their owners chose to build them, even next to houses. Railroads ran through the heart of the community causing noise, traffic problems, and pollution. Tall buildings shut out the sunlight. Roads, schools, police and fire stations, and other public buildings were afterthoughts—squeezed onto cheap land or put where someone in power could make a big profit. The needs of the city and its citizens were rarely considered.

Washington, D.C., is one of the few cities in the nation that began as, and has remained, a planned city. Major Pierre-Charles L'Enfant designed the city before a single building was started. Today, nearly every city has established a planning commission. These commissions use a trained professional staff to try to create order out of the unplanned designs and plans. City planning usually involves the following items:

- general plans that summarize the objectives of land development
- zoning and subdivision controls that specify permissible land uses, densities, and requirements for street, utility services, and other improvements
- plans for traffic flow and public transportation
- strategies for economic revitalization of depressed urban areas
- guidelines for environmental protection.

Zoning, the practice of dividing a city into a number of districts or zones, is an important part of city planning. The use of each zone is regulated and restricted to certain things.

DAY 1 ACTIVITIES

TECHNOLOGY EDUCATION
CITY PLANNING

DAY 1 ACTIVITIES

Generally, a zoning ordinance places each parcel of land into one of three zones: residential, commercial, or industrial. Zoning is a phase of city planning that helps ensure orderly growth.

One of the advantages to living in a city is that it provides many services that couldn't be provided otherwise. These services include:

- police and fire protection
- street and sidewalk construction and maintenance
- street and neighborhood lighting systems
- schools, day-care centers, and libraries
- recreational facilities such as swimming pools, golf courses, parks, playgrounds, auditoriums, and sports arenas
- hospitals
- correctional institutions
- airports
- public health and sanitation services such as sewer and waste treatment, rubbish and garbage collection and disposal

Every city has its own government. There are many different forms of city government, but most big cities use one of the following types.

Mayor-Council: The oldest and most widely used type of city government, features an mayor as its chief executive and an council as its legislative body. Members of the council are elected by the people. Sometimes the mayor is also elected by the voters; however, sometimes the mayor is appointed by the council from its own members. The mayor usually presides at council meetings. Sometimes the mayor can only vote to break a tie. Often the mayor has veto power that can be overridden by the council.

TECHNOLOGY EDUCATION
CITY PLANNING

There are two types of mayor-council governments. In a **strong-mayor** type, the mayor heads the city's administration and usually has the power to hire and fire employees and prepare the city budget. The mayor exercises strong leadership in making policy and running the city.

The **weak-mayor** type limits the power of the mayor. Executive duties are shared with elected officials such as the council and the city clerk, treasurer, engineer, and police chief. Powers of appointment, removal, and budget are shared with the council; the mayor seldom has veto power.

Commission: In this form of city government, elected commissioners work together to pass ordinances and control the city's budget. Each commissioner heads a different city department, such as the police, fire, public works, or finance. Both legislative and executive powers are centered in one body.

Council-Manager: In this form of city government, a strong council elected by the people hires a city manager, who is usually a professionally-trained city planner. The council is the city's policy making body. The manager carries out the policies of the council and is responsible to that body for the efficient administration of the city.

If you have used SimCity or SimCity Classic, review the following list of changes and new features found in SimCity 2000. If you haven't played SimCity before, you may skip this section of the Information Sheet.

- Three-dimensional graphics provide a three-dimensional view of your city. Three different zoom levels and a rotatable 360° panoramic view let you see behind mountains and buildings.

DAY 1 ACTIVITIES

TECHNOLOGY EDUCATION
CITY PLANNING

- Residential, commercial, and industrial zones that can be made any size by clicking and dragging the mouse where you want to zone. New zone sub-types let you zone for high or low density.
- Different altitude that let you set 32 elevation levels—from underwater to high mountains.
- An underground view of waterpipes, tunnels, subways, and subway stations that lets you easily see your water and underground transportation systems.
- A built-in terrain editor lets you design the perfect terrain before you build you city.
- A water distribution system that lets you lay pipes and place pumping stations, storage towers, and desalinization plants.
- Up to nine types of power plants depending on the time period—coal, gas, oil, solar, nuclear, wind, hydroelectric, microwave, and fusion—let you design efficient power systems.
- Train and subway depots and stations, freeways with on/off-ramps, tunnels, and bridges, and the new subways and buses let you design a more efficient transportation system.
- Educational choices including schools, colleges, libraries, and museums help you educated your citizens.
- City services let you provide police and fire protection as well as hospitals for your citizens.
- Recreational activities including small parks, large parks, zoos, stadiums, and marinas let you provide a high quality of life.

DAY 1 ACTIVITIES

TECHNOLOGY EDUCATION
CITY PLANNING

DAY 1 ACTIVITIES

- On-screen newspapers report your city's problems and reveal how successful the populace thinks you are.
- New city ordinances and budget advisors are available for help.
- A query tool provides information on any building or zone to help with planning.
- Tax rates can be changed for each type of industry to encourage or discourage growth in your city.
- The *SimCity 2000 Users Manual,* pages 136–138, lists additional changes and features.

If you complete Day 1 Activities with time left over, you may begin Day 2 Activities.

TECHNOLOGY EDUCATION
CITY PLANNING

On Day 2 you should complete the following activities:

1. Complete Objective 1

DAY 2 ACTIVITIES

SUMMARY OF ACTIVITIES

Reading Comprehension
- Gain factual information
- React to written material

Functional Reading
- Follow written instructions
- Interpret graphics and symbols
- Use content area vocabulary

Math Application
- Apply techniques of scaling

Data Analysis and Display
- Interpret charts and tables
- Interpret graphs
- Collect/record data

TECHNOLOGY EDUCATION
CITY PLANNING

Complete pages 6–24 of the tutorial in the *SimCity 2000 Users Manual.*

➢ SimCity 2000 software and *User's Manual*

☑**NOTE:** Before beginning this TLA, you should be familiar with the basic operation of the computer you will be using. You should be able to use a mouse to do the following:

- **Point** to an object
- **Click** on an object to select it
- **Drag** an object to a new location or select from a menu
- **Double click** on an object
- **Shift click** on an object

FOLLOW THESE STEPS:

STEP 1: Now let's start learning about SimCity 2000. Follow your teacher's instructions to turn on the computer and open SimCity 2000.

STEP 2: Open the *SimCity 2000 User's Manual* to page 2. Read the introductory material on pages 2–4.

STEP 3: Start the tutorial activities by reading the quotation on page 5. Read and work through the tutorial activities on pages 6–24.

☑**NOTE:** To get **Help** while using SimCity 2000, click on the button with a question mark. If your mouse has a right button, clicking it on a button or icon opens a help message about the button or icon. If your mouse has only one button, hold down **SHIFT** while clicking to get the same information.

DAY 2 ACTIVITIES

OBJECTIVE 1

TOOLS AND MATERIALS

PROCEDURE

TECHNOLOGY EDUCATION
CITY PLANNING

If you start to do something, like laying zones, powerlines, or waterpipes, and then change your mind, you can cancel the operation by holding down **SHIFT** key before releasing the mouse button.

STEP 4: When you have completed the tutorial activities, you will be told to save your city. Follow your teacher's directions for saving your city. Turn off the computer by following your teacher's instructions.

If you complete Day 2 Activities with time left over, you may begin Day 3 Activities.

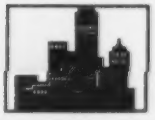
DAY 2 ACTIVITIES

TECHNOLOGY EDUCATION
CITY PLANNING

On Day 3 you should complete the following activities:

1. Complete Objective 2
2. Complete Objective 3
3. Complete Objective 4
4. Complete Objective 5
5. Complete Objective 6
6. Complete Objective 7
7. Complete Objective 8
8. Complete Objective 9
9. Complete Objective 10
10. Complete Objective 11
11. Complete Objective 12
12. Complete Objective 13
13. Complete Objective 14

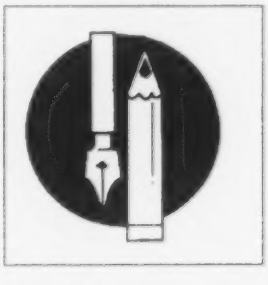
DAY 3–15
ACTIVITIES



SUMMARY OF ACTIVITIES

Reading Comprehension
- Gain factual information
- Analyze cause and effect
- Draw conclusions
- React to written material

Functional Reading
- Follow written instructions
- Interpret graphics and symbols
- Use content area vocabulary



Language Skills:
- Use standard grammar, spelling, and capitalization
- State ideas clearly

Functional Writing:
- Use computer graphics

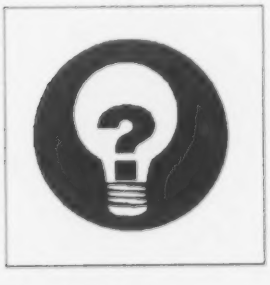
TECHNOLOGY EDUCATION
CITY PLANNING

DAYS 3–15 ACTIVITIES

Math Application
- Apply techniques of scaling

Data Analysis and Display
- Interpret charts and tables
- Interpret graphs
- Collect/record data

Functional Math
- Solve practical problems
- Calculate gross earnings
- Solve income/expense problems
- Prepare a budget
- Calculate interest
- Calculate sales tax



Cognitive Activities
- Identify critical elements/issues
- Analyze/synthesize information
- Identify/analyze underlying assumptions
- Draw conclusions
- Identify/evaluate consequences
- Evaluate alternatives
- Devise a solution
- Create a finished product
- Transfer knowledge/training to new situations
- Evaluate results/outcomes

TECHNOLOGY EDUCATION
CITY PLANNING

DAY 3–15 ACTIVITIES

Information Analysis
- Interpret graphical information
- Interpret maps/globes
- Analyze/interpret demographic information

Social Studies Application
- Investigate/apply principles of government/politics

Functional Social Studies
- Analyze social issues
- Analyze conservation/ecology issues
- Analyze economic impact of science/technology
- Analyze social impact of science/technology

TECHNOLOGY EDUCATION
CITY PLANNING

Using objectives 3–14 complete the simulations listed below.

Unit 1 Quick City 2000
- Starter City
- Quick and Dirty City
- Redesigning Quick and Dirty

Unit 2 The Living City
- Elements of the City
- Land and Location
- City Services and Infrastructure

Unit 3 Cities and Change
- Immigration and Emigration
- Landforms and Limitations/Natural Resources
- Time and Technology

Unit 4 Politics
- Politics and Planning
- Public Opinion and Feedback
- Ordinances and the City Council

Unit 5 Economics
- Industry and Commerce
- City Finance
- Land Value

Interpret information from the SimCity 2000 maps and graphs.

Interpret the scale and perspective in the SimCity 2000 windows to successfully build cities.

Use decision-making skills to make environmentally-sound decisions for your cities.

Evaluate the effects of zoning, politics, and public opinion.

Plan ways to use the budget that will keep your cities economically sound.

Use math concepts for percentages, budgeting, and finance.

Explore the financial effects of economics on budgeting, taxes, and land value.

DAY 3–15
ACTIVITIES

OBJECTIVES 2–14

TECHNOLOGY EDUCATION CITY PLANNING

Analyze taxation and funding to provide city services.

Identify the effects of government, unemployment, health, and education on the businesses.

Develop strategies for dealing with disasters, crime, and pollution.

Improve the quality of life by adding recreational areas.

Use SimCity 2000 to formulate plans, take action, and resolve problems.

DAYS 3–15 ACTIVITIES

TOOLS AND MATERIALS

- SimCity 2000 software, User's Manual, and Teacher's Guide
- Copies of the Simulations and other materials from the Teacher's Guide

On Days 3–15, you will be working with several SimCity 2000 simulations. These simulations will help you understand how SimCity 2000 works. They will prepare you for Days 16–17 when you create your own city.

PROCEDURE

FOLLOW THESE STEPS:

STEP 1: Follow your teacher's instructions to turn on the computer and open SimCity 2000.

STEP 2: Find the activity sheets for the Simulation **Starter City** (Unit 1, Simulation 1)

STEP 3: Follow the instructions on the simulation sheets to complete the activity. Step 5 lists some questions to think about as you complete each simulation.

STEP 4: Complete as many of the simulations as time permits or as your teacher assigns. Always follow the instructions on the sheets.

TECHNOLOGY EDUCATION
CITY PLANNING

DAY 3–15 ACTIVITIES

STEP 5: Listed below are some questions to think about as you work through each simulation.

Unit 1 Simulations

- What is a city?
- Why do we have cities?
- What is more important to a city—things like streets, parks, buildings or people?
- What do you think you need in your city? What do you want?
- What are some things you don't want in your city?

Unit 2 Simulations

Elements of the City

- The elements of the city are listed on the Elements of the City chart. What element is the most important?
- Can you have a city without people?

Land and Location

- Why have cities been built where they are? Do you know why your hometown was built where it is?
- What landscape features are favorable for locating a city?
- What landscape features are unfavorable for locating a city?
- What effect does a city's location have on its people and industries?

City Services and Infrastructure

- Name some utilities, transportation methods, and city services that aren't in SimCity 2000.

TECHNOLOGY EDUCATION
CITY PLANNING

DAYS 3–15 ACTIVITIES

Unit 3 Simulations

Immigration and Emigration

- Why do people move from one city to another?
- Do cities always want more people? Why or why not?
- If you wanted to attract people to your city, what would you do?
- If your city was too crowded, what would you do?

Limitations/Natural Resources

- What happens when a city has no more room to expand, but keeps having people move in?
- What happens when there are too many people for the water supply?
- What resources besides land and water can be depleted and affect a city?

City Services and Infrastructure

- How do inventions and technologies affect cities?

Unit 4 Simulations

Politics and Planning

- Why do cities have different zones?
- What do you think a big city without zones would look like?
- What can happen when the people don't like the decisions the city is making?

Public Opinion/Feedback

- What are some ways citizens let politicians know how they feel?

- Who is more likely to be heard and believed by a politician—10 noisy, active people who write letters and rent TV ad time or 10,000 quiet people who quietly complain to each other?

Laws and Ordinances

- Who enacts laws/ordinances?
- Who approves them? Can they be changed?
- Does your home town have a city council, a mayor, and/or a city manager?

Unit 5 Simulations

Industry/Commerce/Trade

- What is industry?
- What elements of a city are good for industry?
- What requirements might an industry have before moving to a city?
- What is commerce?
- What elements of a city are good for commerce?
- Can a city exist with both commerce and industry?

City Finance

- What are some things cities spend money on?
- Where do cities get their money?
- Who decides how the money is spent?

Land Value

- What is land value and why is it important?
- What things affect land value?

TECHNOLOGY EDUCATION
CITY PLANNING

STEP 6: Follow your teacher's instructions to complete the Thinking It Over sections of each simulation. Be sure to turn these in to your teacher when completed.

STEP 7: Return all materials to the proper place and clean up your work area.

When you complete these activities, you may begin Day 16 Activities.

DAYS 3–15 ACTIVITIES

TECHNOLOGY EDUCATION
CITY PLANNING

On Days 16 and 17 you should complete the following activities:

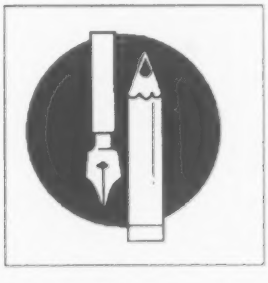
1. Complete Objective 15
2. Complete Objective 16

DAYS 16–17 ACTIVITIES

SUMMARY OF ACTIVITIES

Reading Comprehension
- Gain factual information
- Analyze cause and effect
- Draw conclusions
- React to written material

Functional Reading
- Follow written instructions
- Interpret graphics and symbols
- Use content area vocabulary



Language Skills:
- Use standard grammar, spelling, and capitalization
- State ideas clearly

Functional Writing:
- Use computer graphics

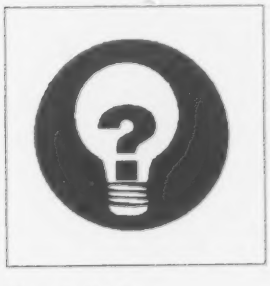
TECHNOLOGY EDUCATION
CITY PLANNING

DAYS 16–17 ACTIVITIES

Math Application
- Apply techniques of scaling

Data Analysis and Display
- Interpret charts and tables
- Interpret graphs
- Collect/record data

Functional Math
- Solve practical problems
- Calculate gross earnings
- Solve income/expense problems
- Prepare a budget
- Calculate interest
- Calculate sales tax



Cognitive Activities
- Identify critical elements/issues
- Analyze/synthesize information
- Identify/analyze underlying assumptions
- Draw conclusions
- Identify/evaluate consequences
- Evaluate alternatives
- Devise a solution
- Create a finished product
- Transfer knowledge/training to new situations
- Evaluate results/outcomes

TECHNOLOGY EDUCATION
CITY PLANNING

DAYS 16–17 ACTIVITIES

Information Analysis
- Interpret graphical information
- Interpret maps/globes
- Analyze/interpret demographic information

Social Studies Application
- Investigate/apply principles of government/politics

Functional Social Studies
- Analyze social issues
- Analyze conservation/ecology issues
- Analyze economic impact of science/technology
- Analyze social impact of science/technology

TECHNOLOGY EDUCATION CITY PLANNING

Using any of SimCity 2000's features, create and build a simulated city of your own design.

Write a one-page essay, using correct grammar and spelling,describing the process of designing, planning, and implementing your city.

- SimCity 2000 software, User's Manual, and Teacher's Guide

For the next two days you will be creating your own city. Obviously, your goal is to have your city grow and prosper. While creating your own city, you can use any part of the software.

FOLLOW THESE STEPS:

STEP 1: Follow your teacher's instructions to turn on the computer and open SimCity 2000. Read and review the "Strategies" section that begins on page 119. Remember the things you learned as you worked through the simulations.

STEP 2: Open a new city or custom-design your terrain before you begin.

STEP 3: During the next two class periods, you are to build and run your city. Feel free to modify it in any way you see necessary. Think about the strategies found on pages 119–124 of the *User's Manual* and the things you learned in the simulations.

STEP 4: At the end of Day 16, be sure to save your city so you can work on it later. Follow your teacher's instructions for saving.

DAYS 16–17 ACTIVITIES

OBJECTIVE 15 AND 16

TOOLS AND MATERIALS

PROCEDURE

TECHNOLOGY EDUCATION
CITY PLANNING

STEP 5: At the end of Day 17, show the teacher each window of your city. On a sheet of paper, describe your city, telling everything about it including why you built it where you did, what ordinances and laws you enacted, and what transportation and other services you provided. Turn these in to your teacher on Day 18.

STEP 6: Follow regular procedures to save your final city.

STEP 7: Turn off the computer by following your teacher's instructions. Return all materials to the proper place and clean up your work area.

If you complete these activities with time left over, you may begin Day 18 Activities.

DAYS 16–17 ACTIVITIES

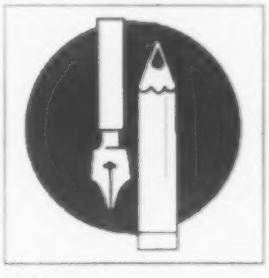
TECHNOLOGY EDUCATION
CITY PLANNING

On Day 18 you should complete the following activities:

1. Read Impact Statements
2. Complete Career Search Activity
3. Complete any unfinished assignments
4. Complete Posttest

DAY 18 ACTIVITIES

SUMMARY OF ACTIVITIES



Language
- Use standard grammar, spelling, and capitalization
- State ideas clearly

Functional Writing
- Use computer graphics

Job Search/ Selection
- Analyze personal occupational aptitudes/preferences
- Investigate employment prospects of a career field/occupation
- Investigate training requirements for a career field/occupation
- Investigate benefits of a career field/occupation

TECHNOLOGY EDUCATION
CITY PLANNING

City planning can have a big impact on the environment. Poorly planned cities are often very detrimental to the environment because they usually have poorly designed water systems, little public transportation, and unregulated industries. They are sometimes very crowded causing an overuse of the land and its resources.

City planning has an impact on almost every phase of our lives. A well designed city provides numerous services for its citizens. Shopping is convenient, medical care is readily available, schools and libraries are well financed, and police and fire protection keep the city safe. In addition, a well planned city has recreational facilities that improve the quality of life for everyone. All of these things make for happy, healthy citizens.

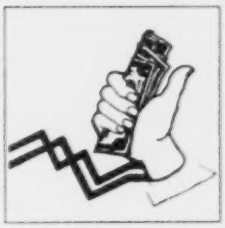
City planning affects the economy in many ways. Poorly planned cities will not attract new industries and businesses. That leads to fewer and fewer jobs for the citizens causing high unemployment. High unemployment means the people have less money to spend. More and more people depend on the city to take care of them. Well planned cities are usually attractive to new businesses and industries. Employment opportunities increase making unemployment lower and ensuring that the people have money to spend.

DAY 18
ACTIVITIES

ENVIRONMENTAL IMPACT

SOCIAL IMPACT

ECONOMIC IMPACT

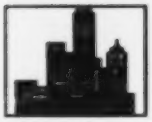


TECHNOLOGY EDUCATION CITY PLANNING

Citizens look to local government to provide services such as water, police, fire, and parks. Poorly planned cities cause political problems. These cities usually don't have the tax base (money) to provide adequate police and fire protection. Unemployment in these poorly planned cities is usually high, causing higher crime rates. Lack of funding often causes few parks or other recreational areas to be built and maintained. All of these problems cause people to be less satisfied with the city and its government.

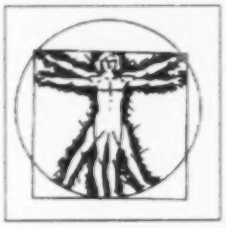
Ergonomics means developing products and systems that are comfortable for the people to use and that really fit their needs. City planners usually have problems that need to be solved if the city is to grow and prosper. Finding the best solution involves not only finding something that works but also something the citizens will accept or use—an ergonomicallly correct solution. Finding a solution that the people won't accept or use really doesn't solve the problem. For example, suppose the city has major traffic problems. One solution might be to ban all automobile traffic. This would obviously solve the traffic problems. But it would probably cause an unroar from the people because many would not want to give up their cars. A more ergonomically correct solution such as rewarding carpoolers and people using public transportation or asking businesses to stagger the working hours might solve the problem without alienating the people.

DAY 18 ACTIVITIES



POLITICAL IMPACT

ERGONOMIC IMPACT



TECHNOLOGY EDUCATION
CITY PLANNING

Using Career Search Abstracts, find the occupations listed below. Select the two occupations that sound most appealing to you. On a separate sheet of notebook paper, list the two occupations you selected and tell why. Remember to use complete sentences, proper grammar, and correct spelling. Give the sheets to your instructor.

- Budget Analyst
- City Manager
- Civil Engineer
- Public Administrator
- Urban and Regional Planner

DAY 18
ACTIVITIES

CAREER SEARCH ACTIVITY
INSTRUCTIONS

RELATED CAREERS

BUDGET ANALYST

NATURE OF THE OCCUPATION

Organizations and businesses develop budgets to plan, organize and allocate financial resources. Budget analysts play a key role in researching, developing and implementing the budget. They are usually responsible for overseeing the performance of the budget and looking for new ways to increase efficiency and improve profits.

Duties may include but are not limited to the following:

- Providing technical assistance in preparing annual budgets
- Reviewing financial requests by departments within the organization
- Examining past budgets
- Reporting budgetary discrepancies
- Conducting in-house seminars on new budgetary guidelines

OCCUPATIONAL SPECIALTIES

Budget officers (161.117-010) oversee the work of individuals researching, planning, preparing and executing budgets.

WORKING CONDITIONS

Budget analysts work in normal office settings. They generally work 40 hours per week, but may be required to work longer during periods when new budgets are due. Budget analysts spend most of their time working independently, and their schedule may be interrupted periodically with staff meetings, planning sessions, or training.

Tools, equipment and materials used may include:

- Budget forms
- Spread sheets
- Computers
- Calculators

You should like:

- Working with numbers and detailed data analysis
- Creating innovative means to allocate limited funds
- Working with computers and making financial calculations

You should be able to:

- Operate computer spreadsheets
- Sit for long periods of time doing detail work
- Work independently
- Be logical and methodical in your thinking
- Speak clearly and logically

Physically you must:

- See well, either normally or with correction
- Maintain focused attention for long periods of time

Opportunities for Experience:

You can gain on-the-job experience for this occupation by gaining employment as an accounting or payroll clerk, or other clerical staff working closely with the budgeting process. Since many companies promote budget staff from within, this valuable experience makes you an asset to your company.

Methods for Entry:

Most corporations and governmental agencies prefer candidates with at least a bachelor's degree in business, finance, accounting or economics. To ensure proper analytical ability, many are beginning to prefer those with master's degrees.

EARNINGS AND ADVANCEMENT

Both private and public sector jobs as budget analysts are salaried positions. The precise amounts vary considerably based upon education, experience and the organization for which you work. Beginning analysts work under close supervision, but rapid advancement is possible for those with exceptionally good analytical ability and work ethic. As analysts rise in position, their jobs become increasingly supervisory.

Earnings:

First year budget analysts earned an average $28,766 in 1994. The average increases to $32,938 with 3 years' experience, and $37,198 with 6 years' experience.

BUDGET ANALYST

Oklahoma Salary:

Region	Range
Central	13.00-19.00
Northeast	15.50-21.00
Northwest	--
Southwest	--
Southeast	--

Fringe Benefits:

Budget analysts qualify for any fringe benefit that would be normally offered to other salaried staff. These would normally include paid holidays and vacations, sick time and health/ retirement benefits.

Career ladder for this occupation may look like this:

- Manager
- Senior Budget Analyst
- Budget Analyst
- Payroll or Accounting Clerk

EMPLOYMENT AND OUTLOOK

Nationally, there were 67,000 budget analysts employed in 1992. The occupation of budget analyst is expected to grow about as fast as average through the year 2005. Though computers perform most of the work of analyzing and projecting budgets, the demand for analysts will remain high due to the increased demand for information. Because of the growing complexity and specialization in the business world, more attention is being given to financial planning and control.

Oklahoma Employment and Outlook

In Oklahoma, 12 job openings are projected annually for budget analysts until the year 2000. These job openings represent new job growth and vacancies caused by leaving the occupation, promotions, retirements, etc. In 1990, budget analysts held 501 jobs in Oklahoma. They are projected to hold 554 by the year 2000. This is considered an average growth rate.

Levels of education and training usually needed for this occupation:

- Bachelor's degree

Levels of education and training also available for this occupation:

- Master's degree

School subjects helpful in preparing for this occupation:

- Accounting
- Finance
- Computer Science
- Business Math
- Business Data Processing
- Business
- Business Law

MORE SOURCES OF INFORMATION

- U.S. Office of Personnel Management
  1900 E St. NW, Room 1416
  Washington, DC 20415

CITY MANAGER

NATURE OF THE OCCUPATION

City managers, who are appointed by the city council, direct and coordinate the administration of a city government according to the policies determined by city council members or other elected officials.

Duties may include but are not limited to the following:

- Appointing department heads and their staff
- Supervising activities of various city departments
- Preparing the annual budget and submitting it for approval
- Conducting city council meetings
- Keeping the city council informed of the city's financial condition and needs
- Planning for the future physical and economic development of the city and its surrounding areas
- Developing policies to be presented to the mayor and city council for adoption
- Drafting legislation
- Keeping the public fully informed regarding the operations of the city government

WORKING CONDITIONS

City managers generally work in offices and supervise, directly or indirectly, all non-elected personnel of a city. In turn, they may be supervised by the elected mayor and the city council members.

The city manager's schedule frequently involves more than 40 hours of work a week. Handling after-hours emergencies, attending meetings held by the city council, other city committees or civic organizations are tasks expected of a city manager.

Most city managers are furnished with automobiles or receive a car allowance, although some may be required to provide their own transportation.

City managers may join professional associations such as the International City Management Association. Their periodic dues are often reimbursed by the city.

Tools, equipment and materials used may include:

- City charter and ordinances
- Reference books
- Public statute books
- Diagrams
- Contracts
- Blueprints

You should like:

- Activities involving contact with people
- Activities requiring detailed communication of information

You should be able to:

- Plan, direct and coordinate an entire project from start to finish
- Understand and effectively use administrative methods
- Influence people in their opinions, attitudes or judgments about ideas or things
- Maintain an impartial attitude and keep an open mind

Physically you must:

- Maintain good physical and mental health under stress and pressure
- See and hear well, either naturally or with correction
- Speak clearly

Opportunities for Experience:

Experience may be gained in the city manager field through summer internship and work-study programs available to

CITY MANAGER

undergraduate college students at many colleges and universities. A limited number of graduate fellowships and internships may also be available.

Methods for Entry:

Direct application to the city council of the city where work is desired. Some cities may require a competency examination.

EARNINGS AND ADVANCEMENT

Earnings depend upon previous experience as a city manager and the size and location of the city. Earnings also vary according to individual negotiations with city councils.

Earnings:

City managers' salaries vary greatly depending on the size of the city. The average starting salary for a city manager was $28,081 in 1994. The average annual salary of experienced city managers was about $40,911 in 1994. In cities with a population under 2,500, city managers averaged about $37,311. In cities with a population over one million, they earned around $140,718.

Oklahoma Salary:

Region	Range
Central	--
Northeast	--
Northwest	--
Southwest	--
Southeast	under-13.00

Fringe Benefits:

Most city managers receive paid vacations and holidays, life, accident, disability and hospitalization insurance, retirement plans and sick pay. These benefits are usually paid, at least in part, by the city. A car allowance, educational benefits and deferred compensation plans may also be provided.

Career ladder for this occupation may look like this:

- City Manager
- Assistant City Manager
- Administrative Assistant

City managers may advance through experience and success to larger cities with accompanying larger work loads and salaries.

EMPLOYMENT AND OUTLOOK

There were approximately 11,000 city managers employed nationally in 1992. Little change is expected in the employment of city managers through the year 2005. Some small increase may occur as growing communities become independent cities and towns and hire managers or change unpaid positions to salaried positions.

Persons who have experience or graduate degrees in public administration will have the best chances for employment, even though competition will be keen.

Oklahoma Employment and Outlook

No data available.

Levels of education and training usually needed for this occupation:

- College - bachelor's degree
- College - master's degree

Levels of education and training also available for this occupation:

- College - Ph.D. or professional degree

School subjects helpful in preparing for this occupation:

- College Preparatory
- Accounting
- Law
- Business
- Office Practice
- Economics
- Government
- Political Science

MORE SOURCES OF INFORMATION

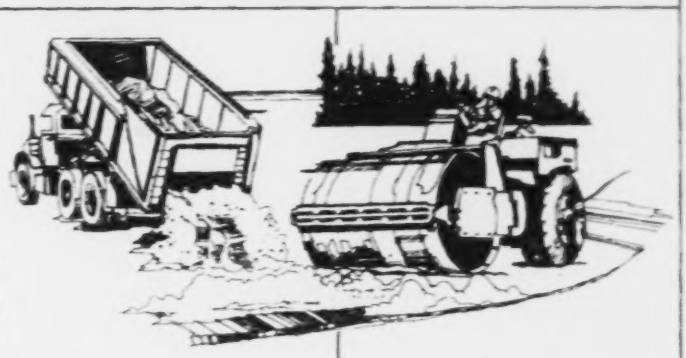
- Information Resource Center
  American Management Assoc.
  135 West 50th Street
  New York, NY 10020

- The Professional Government Management Association
  Career Information
  777 N. Capitol St., Suite 500
  Washington, DC 20002-4201

TECHNOLOGY EDUCATION
CITY PLANNING

DAY 18 ACTIVITIES

CIVIL ENGINEER



NATURE OF THE OCCUPATION

Civil engineers plan, design and supervise the construction and maintenance of structures and facilities such as roads, airports, tunnels, bridges, water supply and sewage systems and buildings. Civil Engineers may perform technical research and use computers as aids in developing solutions to engineering problems.

Duties may include but are not limited to the following:

- Preparing plans and specifications
- Estimating costs and requirements of projects
- Testing materials to be used
- Determining solutions to problems
- Supervising construction and maintenance
- Inspecting existing or newly constructed projects and recommending repairs
- Performing technical research
- Determining the impact of construction on the environment

OCCUPATIONAL SPECIALTIES

Transportation Engineers (005.061-038) design and prepare plans, estimates and specifications for the construction and operation of surface transportation projects. Transportation engineers may specialize in a particular phase of the work such as making surveys of roads, improving road signs or lighting, or directing and coordinating construction or maintenance activity.

Structural Engineers (005.061-034) plan, design and oversee the erection of steel and other structural materials in buildings, bridges and other structures that require a stress analysis.

Hydraulic Engineers (005.061-018) design and direct the construction of power and other hydraulic engineering projects for the control and use of water.

Sanitary Engineers (005.061-030) design and oversee the construction and operation of hygienic projects.

Environmental Engineers (005.061-014) apply a knowledge of engineering by correcting or improving various areas of environmental concern, such as air, soil or water pollution.

WORKING CONDITIONS

Civil engineers may work alone or with other engineers, surveyors or supervisors, from 35 to 55 hours a week. They may work at construction sites or in clean, well-lighted and well-ventilated offices and research and testing labs.

Civil engineers may also work in remote areas of foreign countries, often moving from place to place to work on different projects. Civil engineers may be required to furnish part of their drafting equipment.

Civil engineers may belong to an association such as the American Society of Civil Engineers. Members usually pay dues.

Tools, equipment and materials used may include:

- Drafting tools and equipment
- Handbooks
- Surveying equipment
- Computers
- Blueprints and specifications
- Calculators

You should like:

- Working with scientific and technical subjects
- Work requiring precise results
- Performing a variety of duties

You should be able to:

- Supervise others
- Accept responsibility
- Perform mathematical operations quickly and accurately
- Perform detailed and accurate work
- Make judgments based on verifiable information
- Express yourself clearly, both verbally and in writing

Physically you must:

- See well, either naturally or with correction
- Have full use of arms, legs and hands

Special Requirements:

All fifty states and the District of Columbia have licensing regulations for engineers whose work affects life, health or property. Each state administers its own examination. All states now have legal provisions to grant engineering licensing by reciprocity.

CIVIL ENGINEER

Opportunities for Experience:

Part-time employment may be available as an engineering assistant after 1 or 2 years of college. Co-op programs in college and summer employment on construction sites provide experience.

Methods for Entry:

Methods of entering this occupation include direct application to employers and taking civil service exams. Positions may also be located by consulting local newspaper want ads, college placement offices and your state employment office.

EARNINGS AND ADVANCEMENT

Earnings depend upon the size of the employer, geographic location and employee's qualifications.

Earnings:

In 1994, the average salary offer to college graduates with a bachelor's degree in civil engineering was $29,617 per year according to the College Placement Council. Civil engineers with 1 year of experience averaged annual salaries of $35,488 while the average salary for those with 4 years of experience was $42,180 per year. Overall, the median weekly earnings of civil engineers in 1994 was $922 per week or $47,984 per year. All engineers in the federal government earned an average annual salary of $54,206 in 1994.

Oklahoma Salary:

Region	Range
Central	17.00-23.00
Northeast	19.00-30.00
Northwest	--
Southwest	--
Southeast	--

Fringe Benefits:

Depending on the employer, civil engineers may receive paid vacations and holidays, paid sick leave, life, accident, disability and hospitalization insurance and retirement plans. These benefits are usually paid, at least in part, by the employer. Civil engineers may also receive educational reimbursements, a company car and an expense account.

Career ladder for this occupation may look like this:

- Researcher
- Supervisor
- Civil Engineer

Civil engineers may advance with experience or additional training or education.

EMPLOYMENT AND OUTLOOK

There were approximately 173,000 civil engineers employed nationally in 1992. Employment of civil engineers is expected to grow as fast as average for all occupations through the year 2005. A growing economy is expected to result in a growing demand for manufacturing plants, transportation systems, generating plants, off-shore drilling facilities and environmental pollution control.

Oklahoma Employment and Outlook

In Oklahoma, civil engineers are projected to have 50 job openings annually until the year 2000. These job openings represent new job growth and replacements caused by leaving the occupation, promotions, retirements, etc. In 1990, civil engineers held 1,355 jobs in Oklahoma. They are expected to hold 1,569 jobs by the year 2000. This is considered an average growth rate.

Levels of education and training usually needed for this occupation:

- Technical, junior or community college
- College - bachelor's degree
- College - master's degree

School subjects helpful in preparing for this occupation:

- College Preparatory
- Composition
- Algebra
- Calculus
- Computer Science
- Geometry
- Trigonometry
- Biology
- Chemistry
- Physics
- Economics
- Blueprint Reading
- Drafting
- Mechanical Drawing

MORE SOURCES OF INFORMATION

- National Action Council for Minorities in Engineering
  3 West 35th Street
  New York, NY 10001

- Accreditation Board for Engineering and Technology
  345 East 47th Street
  New York, NY 10017

- American Society of Civil Engineers
  Student Services Dept.
  18th Floor
  345 East 47th Street
  New York, NY 10017

- Society of Women Engineers
  Career Guidance Dept.
  120 Wall Street, 11th Floor
  New York, NY 10017

- JETS-Guidance
  1420 King St., Suite 405
  Alexandria, VA 22314-2794

PUBLIC ADMINISTRATOR

NATURE OF THE OCCUPATION

Public administrators direct agencies engaged in developing monetary policy, tax collection, custody and disbursement of funds and debt and investment administration.

Duties may include but are not limited to the following:

- Estimating the true cash value of real and personal property
- Applying the tax rate to the true cash value
- Writing financial reports for the public record
- Directing preparation of the budget and financial forecasts
- Arranging for audits of the city's accounts
- Collecting tax money
- Disbursing money to local government agencies according to the budget
- Directing payroll accounts and making out checks

OCCUPATIONAL SPECIALTIES

Health Care Facility Administrators (187.117-010) direct the administration of a hospital, nursing home or other health care facility within the authority of a governing board. They are responsible for budget planning, accounting and establishing rates for health care services. They also direct and coordinate the activities of the medical staffs, develop programs and expand research and negotiate for improvements and additions to buildings and programs.

Medical-Record Administrators (079.167-014) plan, develop and administer health information systems for health care facilities that are consistent with standards of accrediting and regulatory agencies and the requirements of a health care system. They develop and implement policies and procedures for documenting, storing, and retrieving information and for processing medical-legal documents, insurance data and correspondence requests in conformance with federal, state and local statutes.

Public Health Educators (079.117. 014) plan, organize and direct health education programs for group and community needs. By conducting community surveys and collaborating with other health specialists and civic groups to ascertain health needs, they develop desirable health goals and determine the availability of professional health services.

Social Welfare Administrators (195.117-010) direct agencies or the major functions of public and voluntary organizations that provide services in the social welfare field to individuals, groups and communities. They assume responsibility for the development and administration of standards and procedures related to personnel, including staff development, budget and physical facilities.

Education Specialists (099.167-022) direct research activities concerned with educational programs and services in school systems. They design procedures to determine if program objectives are being met, develop tests to measure the effectiveness of the curriculum or services, evaluate the data that is obtained from these studies and prepare

PUBLIC ADMINISTRATOR

reports from it that are distributed to other school administrators.

WORKING CONDITIONS

Public administrators may work alone or with others on a particular project. They may supervise assistants as well as secretaries, clerks and other workers. They generally work in clean, well-lighted, well-ventilated offices. Public administrators usually work a 5-day, 35- to 40-hour week.

Tools, equipment and materials used may include:
- Calculating machines
- Tables and charts
- Public records
- Financial reports
- Budgets
- Account books
- Copies of city ordinances
- Appraisal manuals
- Typewriters

You should like:
- Having business contact with people
- Communicating data and information
- Working with numbers and technical subjects

You should be able to:
- Perceive detail in written material or tables
- Evaluate information and perform arithmetic operations
- Maintain set limits and standards of accuracy
- Work well with people at all levels

Physically you must:
- Reach for, handle and feel objects
- See and hear well, either naturally or with correction

Special Requirements:

Knowledge of management principles and practices is the essential element that is required in this occupation, and this is most generally gained from work experience. Formal education preparation is important for advancement, and for many chief administrative positions, a graduate degree is recommended.

EARNINGS AND ADVANCEMENT

Earnings of public administrators vary widely. Their experience, education, and levels of responsibility, as well as the size and geographic location of the city, county or township where they work, all affect earnings.

Earnings:

Nationally, in 1994, annual earnings of public administrators averaged $40,911. Starting salaries averaged $23,460 per year.

The average annual salary of full-time council members was $3,133 in 1994, with a range from $984 in small cities to $52,609 in cities with populations of 500,000 or more.

The average annual salary of mayors was $10,121 in 1994. In small cities with 2500 people, they averaged $2000; in cities with a population over 1 million, they averaged about $67,943.

City managers averaged about $61,564 in 1994 with a range from $36,589 to about $132,642.

State legislators in 39 states are paid an average annual salary of about $22,454 in 1994. In 11 states, legislators are paid a daily rate only for the days they are in session.

Governors earned salaries with ranges of $40,855 to $151,699.

Oklahoma Salary:

Region	Range
Central	--
Northeast	--
Northwest	7.25-9.00
Southwest	7.25-9.00
Southeast	7.25-10.00

Fringe Benefits:

These officials may receive fringe benefits such as paid vacations and sick leave, hospitalization, health and life insurance and retirement plans. These are usually paid, at least in part, by the employer.

EMPLOYMENT AND OUTLOOK

Employment of public administrators is expected to increase as fast as the average through the year 2005. There are 73,000 public administrators employed nationally, including chief executives, legislators and general administrators. Little if any growth is expected.

Levels of education and training usually needed for this occupation:
- College - bachelor's degree

Levels of education and training also available for this occupation:
- College - master's degree
- College - Ph.D. or professional degree

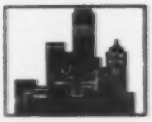
School subjects helpful in preparing for this occupation:
- College preparatory
- Accounting
- Bookkeeping
- Business data processing
- Business law
- Economics

MORE SOURCES OF INFORMATION
- Amer. Soc. for Public Admin.
  1120 G St., NW, Suite 700
  Washington, DC 20005

- International Personnel Management Association
  1617 Duke Street
  Alexandria, VA 22314

TECHNOLOGY EDUCATION
CITY PLANNING

DAY 18 ACTIVITIES



URBAN AND REGIONAL PLANNER

NATURE OF THE OCCUPATION

Urban and regional planners, sometimes called *city* or *community planners*, study problems connected with such issues as land use, transportation and parking, water and sewage systems, housing and community facilities. They assist local government and public institutions in solving social, economic and environmental problems.

Duties may include but are not limited to the following:

- Preparing detailed studies and data showing current use of land for housing, commerce and community purposes
- Conferring with local authorities, civic leaders, social scientists and land planning and development specialists
- Presenting reports indicating the arrangement of streets, highways, water and sewer lines and location of schools, libraries and recreational areas
- Recommending government measures affecting the community
- Providing information on industry, population, employment and economic trends in the community
- Preparing reports and materials that show how programs can be carried out and the approximate costs
- Discussing proposals with government officials, civic groups, land developers and the news media

WORKING CONDITIONS

Urban and regional planners work alone under general supervision or as members of a team. Senior planners may supervise planners and other staff personnel. Urban and regional planners may work with computer programmers, statisticians, lawyers, educators, sociologists, land developers, engineers, architects and other specialists.

Urban and regional planners usually work indoors in clean and well-lit offices. Planners generally work a 5-day, 40-hour workweek. Many planners may spend evening hours meeting with politicians, the public and contractors. Urban and regional planners may have to travel to attend meetings and visit proposed or actual building sites.

Urban and regional planners may join a professional association such as the American Planning Association (APA). Members pay dues.

Tools, equipment and materials used may include:

- Audiovisual equipment
- Computers
- Maps, charts and diagrams
- Surveys, financial statements and other printed material

You should like:

- Activities involving people
- Communicating ideas
- Activities that bring recognition from others

You should be able to:

- Perform a variety of duties that may change often
- Visualize drawings or pictures as solid objects
- Observe detail in objects or drawings and recognize differences in shapes and shadings
- Rate information by using personal judgment

Physically you must:

- See and hear well, either naturally or with correction
- Endure long hours of work

Opportunities for Experience:

Work-study programs for urban and regional planning students are available in some universities. Volunteer, part-time or summer work in a planning office may also be helpful and is required for some graduate degrees. Attending public planning commission meetings will provide exposure to the kinds of problems that concern urban and regional planners.

Methods for Entry:

Methods of entering this occupation include direct application to employers and taking civil service exams. Positions may also be located by consulting newspaper want ads and other publications, professional associations and college placement offices.

URBAN AND REGIONAL PLANNER

EARNINGS AND ADVANCEMENT

Earnings depend upon the size and type of employer and employee's education, experience and level of responsibility.

Earnings:

Urban and regional planners earned an average annual salary of $44,320 in 1994. Graduates with a bachelor's degree earned an average starting salary of $25,066.

The average salary of planners in city government is $44,133; in county governments, $40,320; in joint city/county governments, $45,125; in state governments, $42,640; in private consulting firms, $52,235; and in large non-profit foundations, $45,897.

For planners with over 10 years' experience, county and joint city/county agencies pay about $51,588 annually, while private business and consulting firms pay about $63,909. Directors of public planning agencies earn as much as $13,454 more than staff members at comparable levels of expenence. Salaries of planners in large jurisdictions are as much as $5,174 a year higher than their counterparts in small jurisdictions.

Fringe Benefits:

Depending on the employer, urban and regional planners may receive paid vacations and holidays, group health and life insurance, sick leave and pension plans. These benefits are usually paid, at least in part, by the employers.

Career ladder for this occupation may look like this:

- Director of Planning
- Senior Planner
- Intermediate Planner
- Junior Planner

Urban and regional planners may advance through experience, education, handling responsible assignments well and passing examinations.

EMPLOYMENT AND OUTLOOK

There were approximately 28,000 urban and regional planners employed nationally in 1992. Employment of urban and regional planners is expected to grow about as fast as the average for all occupations through the year 2005. Most jobs will arise from the need to replace experienced planners who transfer to other occupations or leave the labor force for other reasons.

Oklahoma Employment and Outlook:

In Oklahoma, urban and regional planners are projected to have 8 job openings annually until the year 2000. These job openings represent new job growth and replacements caused by leaving the occupation, promotions, retirements, etc. In 1990, urban and regional planners held 222 jobs in Oklahoma. They are expected to hold 257 jobs by the year 2000. This is considered an average growth rate.

Levels of education and training usually needed for this occupation:

- College - bachelor's degree
- College - master's degree

School subjects helpful in preparing for this occupation:

- College Preparatory
- English
- Algebra
- Geometry
- Trigonometry
- Economics
- Political Science
- Sociology
- Drafting
- Mechanical Drawing

MORE SOURCES OF INFORMATION

- Urban Land Foundation
  625 Indiana Ave, NW
  Suite 400
  Washington, DC 20004-2930

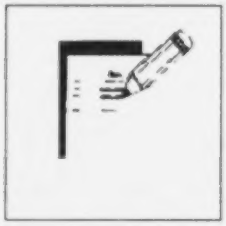
- American Planning Association
  1776 Massachusetts Ave., NW
  Suite 400
  Washington, DC 20036

- Catherine Ross, President
  Association of Collegiate Schools of Planning
  Graduate City Planning Program
  Georgia Institute of Technology
  Atlanta, GA 30332-0155

TECHNOLOGY EDUCATION
CITY PLANNING

DAY 18 ACTIVITIES

POSTTEST INSTRUCTIONS



You will need a computer scan sheet or card to record your answers to the following Posttest. Be sure to write your name, the title of the TLA, the date, and the class period on the computer scan sheet or card using a #2 pencil. Use rows 11–20 to record the answers to the Posttest. If your answers will be hand-scored, use a blank sheet of paper to record your answers and number your answers 11–20. Use rows 21–30 on the test card for the spelling test. If the word is spelled correctly, mark (a) on the computer score sheet or card. If the word is spelled incorrectly, mark (b) on the test card. Be sure to use a #2 pencil and make your marks dark. If your answers will be hand scored, use a blank sheet of paper to record your answers and number your answers 21–30.

Get Posttest Questions from your instructor.

When you finish the Posttest, return the test form and the computer scan card or notebook paper to your instructor.

If you complete Day 18 Activities with time left over, you may complete a Skunk Works activity.

TECHNOLOGY EDUCATION
CITY PLANNING

SKUNK WORKS

BACKGROUND

The term Skunk Works comes from an engineering division of the 3M Company. In the late 1960s, a group of engineers at 3M wanted to design a new product, but the managers of the company would not give them the money for research. So they decided to design the product anyway, then try to convince the company to market it. Whenever the engineers could grab a few extra minutes from their regular assignments, they worked on the new product. In early 1969 they presented it to the marketing division of 3M, and the company has been selling it every since. The product: Velcro fasteners.

SKUNK WORKS CHALLENGE

Choose one of the following Skunk Works activities.

- Look at the city you created. Review the decisions you made. Make a list of these decisions, explaining why you decided as you did. Think about each decision. Did you have other choices? How would a different decision change your city? Try some different choices to see the effects. Try to make your city even more successful.
- SimCity 2000 comes with several scenarios with built-in problems or disasters to overcome. Each of these scenarios has a goal to achieve. Choose one of these scenarios. See if you can solve the problem.